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MONTANA RAIL PLAN

1982 ANNUAL UPDATE

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MONTANA RAIL PLAN

1982 ANNUAL UPDATE

PREPARED BY THE

MONTANA DEPARTMENT OF COMMERCE

WITH ASSISTANCE FROM

WILBUR SMITH AND ASSOCIATES, INC.

IN ASSOCIATION WITH

MORRISON - MAIERLE, INC.

SEPTEMBER, 1982

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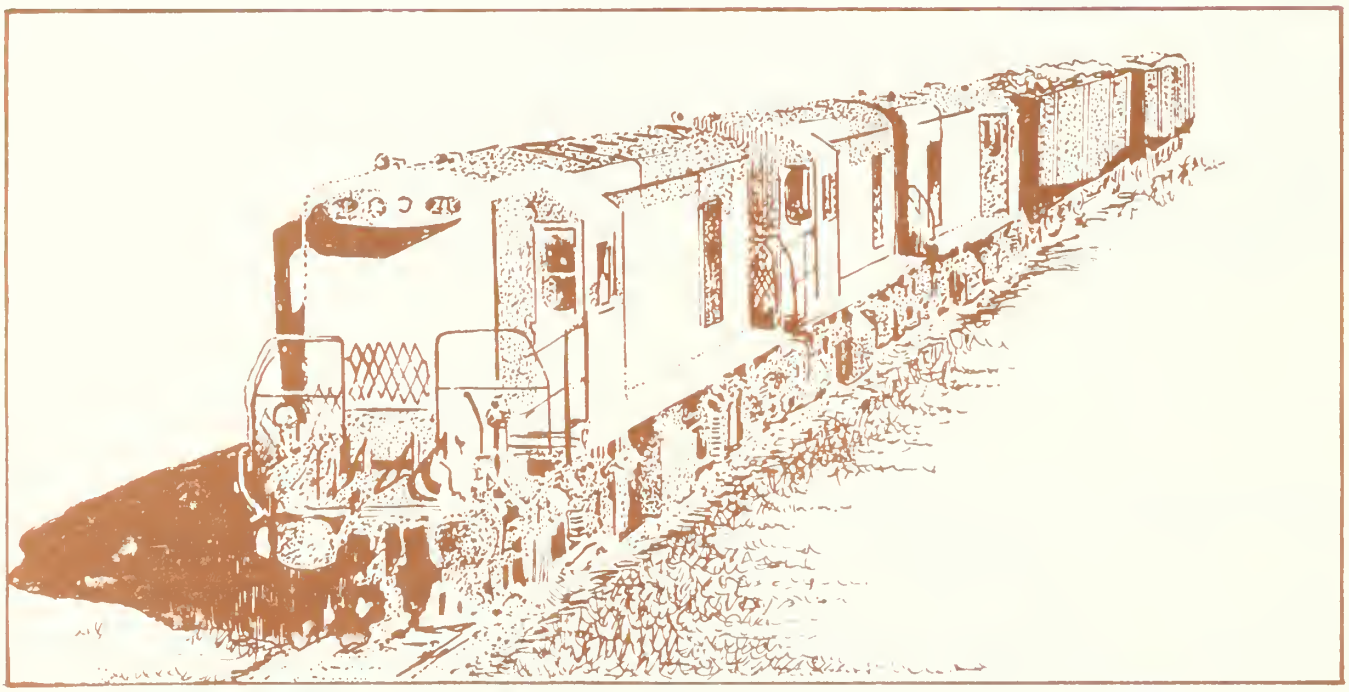
INTRODUCTION TO THE ANNUAL UPDATE



CHAPTER 1

CHAPTER 1
INTRODUCTION TO THE ANNUAL UPDATE

Under provisions of the Railroad Revitalization and Regulatory Reform Act of 1976 (4R Act) and its amendments, states are required to prepare a State Rail Plan and to keep it current through Annual Updates. This participation in rail planning at the state level not only involves the state in a vital segment of the transportation industry but also qualifies the state to receive certain federal funds for the purpose of improving statewide rail services.

The State of Montana published its initial State Rail Plan in August, 1979 and a supplement the following year. This document therefore represents Montana's third publication of its rail plan. Because the State has undergone considerable change with respect to railroads since the last published document, the State has chosen to present a full revision of the earlier work instead of the publication of only items that have changed. Thus, the 1982 Annual update is intended to stand alone so that the reader can gain a full understanding of Montana's railroads without reliance on another report.

Rail Planning Process

The State of Montana conducts its transportation planning along modal lines since there is no state department of transportation. However, since the 1980 Supplement rail activities have been consolidated to some extent. The Department of Commerce has been designated by the Governor as the state agency responsible for rail planning. This assignment became effective July 1, 1981. Prior to the creation of this department, this responsibility was with the Montana Department of Highways. The personnel responsible for rail planning were transferred from other departments including Highways, Agriculture, and the former Department of Community Affairs.

State Rail Policies and Objectives

The State of Montana developed a series of rail policies and objective statements prior to the publication of the State Rail Plan in 1979. These statements have continued to guide rail planning and are presented in Table 1-1.

State Energy Policy

Since the publication of the 1980 Supplement, a new federal rail plan regulation was published. It requires that the Plan must indicate how the rail planning process addresses the need to improve national energy efficiency, reduce the national use of petroleum and natural gas, and increase the use of coal.

Energy planning and policy implementation in Montana is the responsibility of the Energy Division of the Montana Department of Natural Resources and Conservation. The State has been actively involved in energy conservation for several years and has prepared and implemented a State Energy Conservation Plan. However, the Plan does not directly address freight transportation with respect to energy policy. Elements of the plan are as follows:

- Procurement analysis to provide state and local governments with a means to evaluate products for their energy efficiency.
- Energy managing, auditing and retrofitting state buildings.
- Law to allow a right turn on red became effective in 1974.
- Development of carpool and vanpool programs to promote ride sharing.
- Bikeway planning and construction.
- Enforcement of the 55 mph speed limit.
- Weatherization assistance for fixed and low income families.

TABLE 1-1
RAIL POLICIES AND OBJECTIVES
IN MONTANA

POLICIES

1. Continue present reliance upon privately-owned railroads in providing essential intra and interstate rail services.
2. Recognize and accept the principle that individual lines must earn sufficient revenues to cover operating expenses and provide the owning railroad with a reasonable return on the investment.
3. Coordinate rail planning and implementation activities with state and local land use policies and social, economic, environmental and energy use objectives.
4. Encourage railroad efforts to improve service to Montana shippers.
5. Preserve rail access to natural and economic resources having expansion or development potential.
6. Utilize abandoned rail rights-of-way for public uses wherever feasible and practical.

OBJECTIVES

1. Develop the state rail plan as a component of an overall intermodal transportation plan. Evaluate the rail system as a portion of the state's total transportation system.
2. Institute a cooperative, comprehensive and continuing rail planning program which includes participation from state and local governments, the rail industry, and provides for public input.
3. Encourage modal (or intermodal) usage which provides the lowest total transport cost.
4. Identify and evaluate user needs and revenue generation required for the ecomonic operation of specific light density lines.
5. Quantify the economic impacts of proposed rail system adjustments (abandonments).
6. Assess and mitigate, if possible, any environmental and social impacts of rail system adjustments.
7. Take steps necessary to maintain in or return to the private sector these rail lines found to be economically viable.
8. Evaluate alternatives to rail system adjustments, and arrange transportation solutions for shippers on lines not found to be viable.
9. Coordinate funding from governmental and private sources for rail service continuation, rehabilitation, acquisition, substitute service, or new construction projects selected as a consequence of state rail planning.
10. Encourage the continued use of rail passenger service, where provided. Promote expanded passenger service only where the potential traffic is large enough to substantially sustain the service provided.
11. Review state statutes and local regulations to eliminate undue impediments to efficient railroad operations.
12. Promote or sponsor changes and additions (as necessary) to existing federal and state legislation to develop a sound, efficient program of state rail planning and local service assistance.

- A renewable energy tax credit and an energy conservative tax deduction were adopted in 1977 to encourage conservation of fossil fuels.

- Extensive program to educate the public about energy conservation and the many programs available through the State Energy Conservation Plan.

- Adoption of a statewide "Code for Energy Conservation in New Building Construction" in 1978.

- Emergency building temperature restrictions were adopted in 1982 because of the cancellation of the program at the federal level.

Public Participation

Public participation in the rail planning process is encouraged in several ways.

Rail User Survey - The railroad shippers and receivers on most of the branch lines eligible for assistance have participated in surveys so that the State can not only develop a data base but also gain an understanding of rail issues from those who utilize a railroad's services. The survey for this update was conducted beginning in November, 1981. Copies of the survey forms are presented in Appendix A.

A-95 Process - As with most federally funded studies, the 1982 Update was given a formal review in accordance with the Office of Management and Budget Circular A-95 revised, 41 CFR 2052, January 13, 1976.

Public Hearing - A public hearing was held in Helena to receive public comment on the draft report. Legal notices were published in area newspapers in accordance with state law, and copies of the draft Update were circulated.

Transportation Advisory Council - This organization was formed by the Governor to provide public advice on transportation matters. While it had no jurisdictional authority over the Update, the issues of concern to the Council formed a basis for the conduct of the Update.

Newsletter - The Department of Commerce also continued the practice of the Department of Highways by publishing the "Montana Rail Planning Newsletter." Several issues of the newsletter were mailed to approximately 800 parties for each issue.

Informal Public Participation - The Department of Commerce encourages daily public participation through the continuing availability to answer questions, to provide data, and to attend various railroad and shipper meetings.

Funding Process

The federal funds available to the individual states are allocated by the Federal Railroad Administration based on the number of eligible rail line miles in each state in relation to the national eligible rail mileage. Table 1-2 summarizes Montana's entitlements for this program. By federal law, a maximum of 70 percent of a rail project may be funded by this program. The other 30 percent must come from a non-federal source. The State of Montana does not utilize any public funds for this purpose and requires another party to participate. For the one current project under this program, the owning railroad is furnishing the non-federal match. See Appendix B for a description of this project.

Response to Federal Railroad Administration (FRA) Comments

The State of Montana has not received formal FRA comments regarding the initial State Rail Plan or the 1980 Supplement. Therefore, even though the federal rail plan regulations require a response to FRA comments, none can be made.

TABLE 1-2
FUNDS AVAILABLE FOR RAILROAD PROJECTS
State of Montana

FISCAL YEAR	FEDERAL	NON-FEDERAL MATCH	SUBTOTAL	LESS ADMINSTRATION	AVAILABLE
1979	$ 627,976	$ 156,994	$ 784,970	$ 4,778	$ 780,192
1980	3,247,688	811,922	4,059,610	193,315	3,866,295
1981	0	0	0	0	0
1982	1,123,049	481,307	1,604,356	80,218	1,524,138
	$4,998,713	$1,450,223	$6,448,936	$278,311	$6,170,625
Committed(1)	$2,258,600	$ 564,650	$2,823,250	$141,163	$2,964,413
Uncommitted(2)	$2,740,113	$ 885,573	$3,625,686	$137,148	$3,206,212

(1) Power to Eastham Jct., Fairfield to Choteau.
(2) Does not include loan repayments from BN.

Events Occurring Since Previous Report

Three significant railroad related events have occurred since the publication of the 1980 Supplement.

Status of Chicago, Milwaukee, St. Paul and Pacific - Since the preparation of the initial State Rail Plan, the railroad system has changed considerably since a major railroad, the Chicago, Milwaukee, St. Paul and Pacific, has ceased to operate. In 1979, this railroad had over 1,000 route miles in the State. All that remains is approximately 145 miles (excluding some yard track and jointly owned segments) which is owned by the Burlington Northern and another 70 miles which is leased by the Burlington Northern from the South Dakota Railroad Authority. The remainder has been abandoned and is being or already has been salvaged. The State of Montana was quite active in trying to preserve at least some rail service over the Milwaukee Road system. However, with the abandonment and physical dismantling of much of the track, there is little that can be done to restore service. Figure 2-2 in the next chapter presents the current status of trackage on this former system.

Burlington Northern System Diagram Map - Each railroad is required by law to publish a map annually which identifies rail lines which it may seek to abandon. The Burlington Northern published its map in June, 1981, and Montana was one of the states for which the railroad had designated a large number of potential abandonment candidates. (Other states with a large amount of trackage in this category included South Dakota and Nebraska.) The BN later revised its map, but the State still had over 500 miles which were designated for possible abandonment. In June, 1982 the BN published a new map which further reduced the number of miles in potential danger of abandonment. Table 3-2 lists these lines. The State of Montana is extremely concerned over the possibility of losing so many of its branch lines and is seeking ways to assure that a high level of local rail service is maintained. In this report, ten such lines are analyzed in order to make them eligible for federal funding. Four others were analyzed in earlier publications. Finally, thirteen are not in immediate danger of abandonment but are examined in order to find ways that might prevent any future abandonment actions.

Rail Passenger Service - The North Coast Hiawatha was discontinued in October, 1979 as reported in the 1980 Supplement. Service has not been restored, but a renewed interest has been expressed in this service which ran over the BN's main line across the southern part of the State. The National Rail Passenger Corporation (Amtrak) is currently conducting a market feasibility study for this route in conjunction with the State of Montana.

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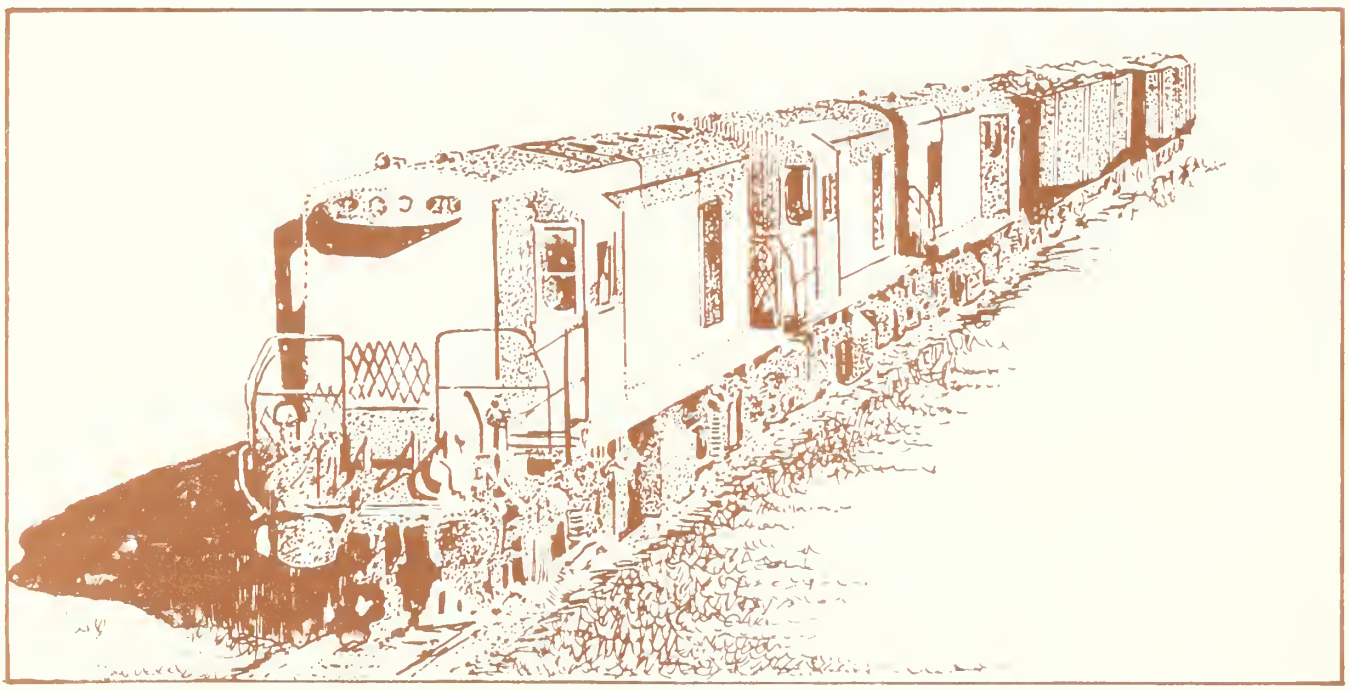
MONTANA RAIL SYSTEM



CHAPTER 2

CHAPTER 2
MONTANA RAIL SYSTEM

Four railroad companies serve Montana. Three of these carriers are designated as Class I railroads by the Interstate Commerce Commission because they receive more than $50,000,000 in gross operating revenue annually. The fourth carrier, the Butte, Anaconda and Pacific, is classified as a Class III carrier with gross revenues of less than 10 million dollars annually. An additional organization, the South Dakota Rail Authority, owns 75 miles of rail line which it leases to the Burlington Northern railroad.

An overview of the total Montana rail system as it exists today can be obtained from Figure 2-1. Examination of the figure indicates a heavy east-west orientation of rail lines along both northern and southern portions of the state. These northern and southern segments are connected in Montana only in the central portion of the State by rail lines leading through the Great Falls area, with additional connections immediately to the east and west in North Dakota and Idaho respectively. The overall east-west orientation leads to the designation of Montana as a railroad "bridge" state. Other connections into this east-west system are found from Canada into the Shelby area, from Idaho and Colorado into the Butte area, from Wyoming into Laurel, and from North Dakota into Terry.

Table 2-1 illustrates the existing mileage of each railroad in Montana. As shown, the State has approximately 5,126 miles of operating track. Ninety three percent is owned or operated by one company, the Burlington Northern Railroad. The Union Pacific rail trackage constitutes only 4 percent of the total state trackage with the Butte, Anaconda and Pacific Railroad accounting for 2 percent and the Soo Line 1 percent.

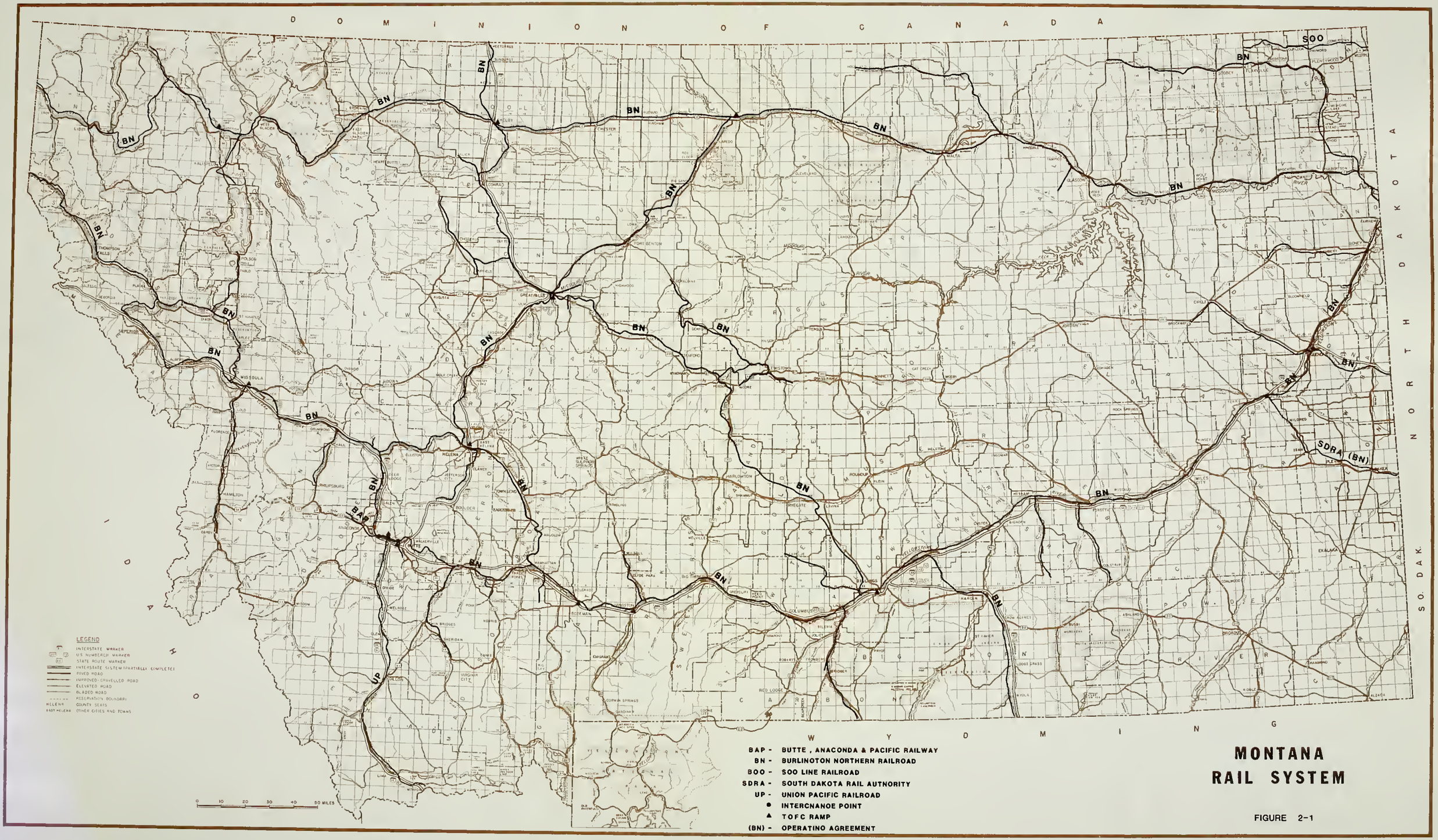
TABLE 2-1

MONTANA RAILROAD TRACKAGE

COMPANY	MONTANA TRACKAGE RIGHTS MILES	MONTANA MILES OWNED AND LEASED		TOTAL MILES OPERATED	PERCENT OF TOTAL MILES OPERATED
		Main Tracks	Other Tracks		
Burlington Northern(1)	124	3,504	1,141	4,769	93
Butte, Anaconda & Pacific	--	26	89	115	2
Soo Line	--	57	4	61	1
Union Pacific	21	134	26	181	4
Total Miles	145	3,721	1,260	5,126	100

(1) Includes approximately 70 miles owned by the South Dakota Rail Authority and operated by Burlington Northern under a lease/purchase agreement.

SOURCE: 1981 R-1 report for each Class 1 railroad and R-3 report for one Class 3 railroad.



MONTANA RAIL SYSTEM

FIGURE 2-1

Railroad Companies

Four rail carriers currently serve Montana with a single carrier, the Burlington Northern, being the largest. Since the 1980 Supplement of the Rail Plan, the Chicago, Milwaukee, St. Paul and Pacific has ceased operations in Montana. However, some of the trackage is still in service. This section summarizes the rail companies in Montana.

Burlington Northern, (BN) - Given the 1980 merger of the Burlington Northern with the St. Louis - San Francisco, the Burlington Northern now operates the nation's longest rail system (over 27,000 miles) which serves 24 states, two Canadian provinces and covers the western two-thirds of the United States. As indicated 93 percent of Montana's rail system is operated by the BN. The principal BN traffic in Montana is coal, followed by farm products (principally wheat) and lumber and wood products.

Butte, Anaconda and Pacific (BAP) - While this railroad accounts for only 2 percent of Montana's rail system, it nevertheless accounts for 8 percent of total Montana originating and terminating 1981 tonnage. The railroad is located in the Butte area and transports primarily copper concentrates. This railroad is exclusively within the State of Montana. Much of the BAP's traffic base has been lost with the reduction of mining-smelting operations in Butte-Anaconda.

Soo Line (SOO) - The Soo Line operates only 1 percent of Montana's rail system with a single line located in the far northeastern part of the State through Sheridan County into North Dakota. A relatively small amount of wheat traffic can be found on this line. To some degree this line operates as a competitor to a BN line which traverses Sheridan County and is also basically a wheat shipping line.

Union Pacific (UP) - The Union Pacific operates a main line from the south into Butte, Montana. This line represents 4 percent of the Montana rail system and carries 2 percent of the freight. The principal commodities carried into Montana by the UP are: non-metallic minerals (principally lead), petroleum and coal products, waste and scrap materials, stone-clay-

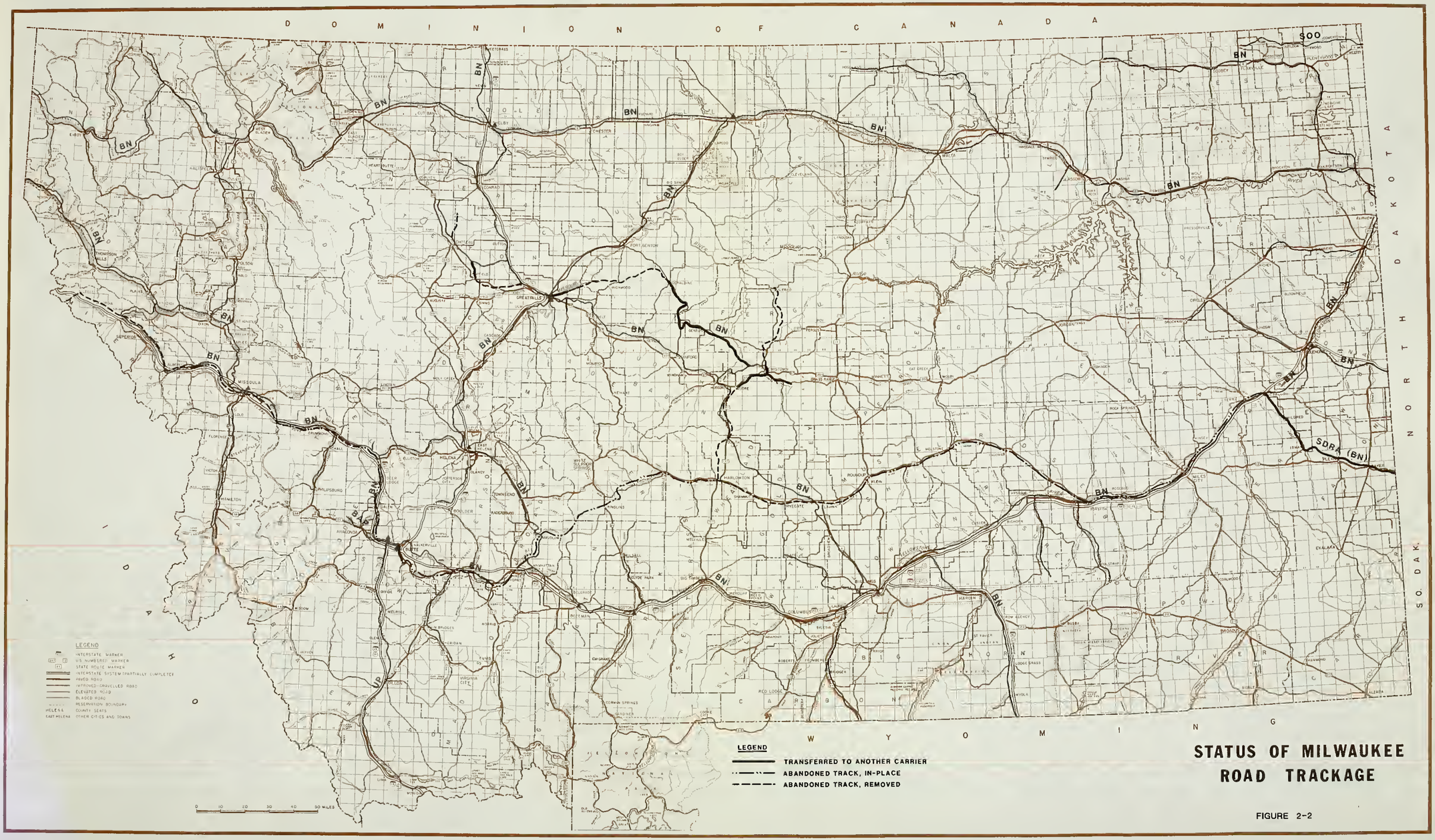
glass-concrete products, and chemicals. The principal commodities carried from Montana (originated on the UP) are non-metallic minerals (mainly phosphate rock), stone (mainly crushed rock), lumber and wood, and chemicals.

Chicago, Milwaukee, St. Paul and Pacific (MILW) - As discussed in Chapter 1, the Milwaukee Road has ceased to exist as an operating railroad in the State. With the exception of certain segments which have been sold to the BN or to the South Dakota Railroad Authority, the Milwaukee Road trackage is being dismantled and the property is being sold. Figure 2-2 illustrates the current status of the salvage operations. The trustee estimates that approximately 15 percent of the railroad property in Montana has been sold and that they are expecting an increased volume of property sales. These sales have generally been to adjacent property owners. Others that have purchased segments or have expressed interest in purchases include various sportsman organizations as well as the Montana Department of Highways.

South Dakota Railroad Authority - This organization was formed to preserve some of the former Milwaukee Road service in South Dakota. One line which affects Montana runs from Terry to Ortonville, Minnesota. This line is owned by the Authority and operated by the Burlington Northern under a lease/purchase agreement. Approximately 70 miles of the line are in Montana.

Railroad Operating Statistics

Summary statistics of the three Montana Class I railroads are shown by Table 2-2. Comparisons derived from these statistics again indicate the dominance of the Burlington Northern Railroad. Even on a net ton-mile basis, the total freight carried by the Soo Line is by comparison small, as is the freight carried by the Union Pacific. Some caution should be applied, however, in that all train mileage and ton-mileage comparisons are strongly skewed by the large BN coal movements. These movements, as illustrated later in Table 2-6, account for 72 percent of all the revenue freight carried by the BN.



STATUS OF MILWAUKEE ROAD TRACKAGE

FIGURE 2-2

TABLE 2-2
RAILROAD FREIGHT OPERATING STATISTICS
CLASS I RAILROADS IN MONTANA
1981

FREIGHT INDICATOR	RAILROAD			TOTAL
	BN	SOO	UP	
Train Miles (thousands)	7,990.16	5.09	115.18	8,110.43
Locomotive Miles (thousands)	30,012.95	13.47	559.23	30,585.65
Car Miles (millions)	617.01	0.03	8.44	625.48
Gross Ton-Miles (millions)	46,722.14	3.97	(1)	46,726.11
Train Hours (thousands)	291.85	0.24	(1)	292.09
Net Ton-Miles of Revenue Freight (millions)	24,807.59	1.15	294.20	25,102.94

(1) Data not compiled by States.

SOURCE: 1981 R-1 report for each railroad.

Freight Traffic

The railroads operating in Montana originated and terminated a large volume of freight traffic as well as the carriage or bridging of traffic through the State. Originating and terminating traffic on the BN has increased 29.7 percent from 1977 to 1981.(1) Over the same time period the remaining railroads, the SOO, UP and the BAP have increased their originating and terminating tonnages by 130 percent. The tonnage increase for the remaining railroads was from 1 million to 2.3 million tons with most of the increase on the BAP railroad. This trend is now reversed with the closure of mining operations in the Butte area. The BN tonnage increase was from 32.3 million to 41.9 million tons.

Total Freight Traffic - As shown by Table 2-3, over 46 million tons of rail freight traffic were originated and terminated in Montana in 1981. In addition, over 4 million tons of rail freight were bridged through the state over the BN line and 1.8 million were bridged by the Union Pacific. Of initial interest is the strong occurrence of originating freight along the BN line. Ninety-one percent of BN originating and terminating traffic is classified as originating.

Considering the other three railroads, the Butte, Anaconda and Pacific originates more traffic than it terminates with originating traffic amounting to approximately 68 percent of total traffic, while the Union Pacific has the reverse condition with terminating traffic amounting to approximately 74 percent of total traffic. The one Soo Line branch in the State is almost strictly a wheat originating line with minimal reverse chemical commodity movements.

Major Commodities - Tables 2-4 and 2-5 illustrate the seven leading commodity group tonnages originated or terminated in the State.

(1) The 1977 BN originating and terminating tonnages (30.8 million tons) were combined with the 1977 Milwaukee tonnages (1.5 million tons) for comparison purposes. Milwaukee tonnages for 1978 and 1979 were not available in addition to representing years in which traffic was declining.

TOTAL 2-3
TOTAL ORIGINATING AND
TERMINATING CARLOADS AND TONNAGE
MONTANA - 1981

RAILROAD	TONS Originating	Terminating	Total
Burlington Northern	38,042,885	3,870,250	41,913,135
Butte, Anaconda & Pacific	971,403	449,878	1,421,281
Soo Line	38,942	156	39,098
Union Pacific	210,171	598,577	808,748
	39,263,401	4,918,861	44,182,262

	CARLOADS Originating	Terminating	Total
Burlington Northern	417,662	65,947	483,609
Butte, Anaconda & Pacific	10,449	4,815	15,264
Soo Line	388	2	390
Union Pacific	3,330	7,259	10,589
	431,829	78,023	509,852

SOURCE: 1981 R-1 report for each Class 1 railroad, telephone survey of the Butte, Anaconda and Pacific Railroad.

TABLE 2-4

MAJOR RAIL COMMODITIES ORIGINATED

IN MONTANA 1981

COMMODITY	CARS	PERCENT	TONS	PERCENT
Coal	313,611	74.4	30,763,407	80.3
Farm Products	32,271	7.7	2,912,343	7.6
Lumber & Wood Products, Except Furniture	32,889	7.8	1,633,321	4.3
Nonmetallic Minerals, Except Fuels	7,952	1.9	670,182	1.8
Pulp, Paper and Allied Products	9,171	2.2	518,394	1.3
Stone, Clay, Glass and Concrete Products	7,206	1.7	477,522	1.3
Petroleum and Coal Products	5,140	1.2	419,804	1.1
All Others	13,140	3.1	896,995	2.3
	421,380	100.0	38,291,968	100.0

SOURCE: 1981 R-1 report for each railroad.

TABLE 2-5

MAJOR RAIL COMMODITIES TERMINATED

IN MONTANA 1981

COMMODITY	CARS	PERCENT	TONS	PERCENT
Coal	9,586	13.1	852,316	19.1
Lumber and Wood Products, Except Furniture	17,201	23.5	818,798	18.3
Non-metallic Minerals, Except Fuels	5,883	8.0	537,840	12.0
Chemicals and Allied Products	4,998	6.8	449,172	10.1
Metallic Ores	4,431	6.1	428,066	9.6
Farm Products	5,155	7.0	290,862	6.5
Petroleum and Coal Products	4,015	5.5	278,107	6.2
All Others	21,936	30.0	813,666	18.2
	73,205	100.0	4,468,827	100.0

SOURCE: 1981 R-1 report for each railroad.

Considering the leading originated commodities, coal is by far the most dominant since it accounts for 30,763,407 tons of freight i.e., 80.3 percent of all originated commodities. Farm Products (predominantly wheat) accounts for only 7.6 percent of total originated tonnage which still amounts to 2,912,343 tons of freight. Lumber and wood products are next in ranking followed closely by significant tonnages of non-metallic minerals, pulp-paper-and-allied products, stone-clay-glass-concrete products, and petroleum and coal products.

Terminated commodities as a whole amount to 12 percent of total originated and terminated traffic. This 12 percent is more evenly distributed among the leading seven commodity groups with coal still as the top commodity accounting for 19.1 percent of all terminated commodities. Coal is followed closely by lumber, non-metallic minerals, chemicals and metallic ores.

Burlington Northern Commodities - As previously indicated the freight movements of the Burlington Northern Railroad dominate the Montana rail system. Given this occurrence a closer inspection of BN freight carriage is shown by Table 2-6. While these freight statistics will have numerous similarities to total Montana freight data, some additional insights can be gained. As with total Montana data, coal carriage does dominate; however, non-metallic mineral carriage takes on a lesser but still significant position. The category of stone-clay-glass-concrete products is ranked a high fourth in tonnage with significant trans-state or bridge movements.

Considering bridge traffic (i.e., other freight carried within the state) of note is the high tonnage of coal movement. Few lumber bridge movements are noted as compared with historic movements, however, significant chemicals and petroleum products are bridged across Montana.

Considering BN commodity traffic excluding coal, originating traffic totals to 7,279,455 tons with terminating traffic at 4,650,854 tons and bridge traffic at 2,703,884 tons. Again, originating traffic is dominant but not to the degree previously indicated. A conclusion to be derived is

TABLE 2-6
PRINCIPAL COMMODITIES CARRIED BY THE
BURLINGTON NORTHERN RAILROAD IN MONTANA 1981

COMMODITY	TONNAGE			
	Revenue Freight Originating Within State	Total Revenue Freight Terminating Within the State	Other Freight Carried Within the State Trans-State	Total Revenue Freight Carried Within The State
Coal	30,763,407	852,104	1,850,207	33,465,718
Farm Products	2,868,363	290,862	44,075	3,203,300
Lumber & Wood Products	1,591,167	818,751	108,511	2,518,429
Stone, Clay, Glass, Concrete	405,121	76,876	1,349,572	1,831,569
Chemicals & Allied Prod.	103,068	437,459	645,216	1,185,743
Petroleum & Coal Prod.	419,735	233,850	263,661	917,246
Non-Metallic Minerals	619,733	55,486	95,070	770,289
Pulp & Paper	518,394	34,087	75,849	628,330
Food & Kindred Prod.	327,627	166,392	15,831	509,850
Primary Metal Prod.	285,123	150,072	23,314	458,509
Metallic Ores	9,911	428,066	10,391	448,368
Fabricated Metal Prod.	503	143,873	163	144,539
Waste & Scrap	76,165	5,284	38,134	119,583
All Others	54,568	177,088	34,097	265,723
	38,042,855	3,870,250	4,554,091	46,467,196

SOURCE: 1981 R-1 report for the Burlington Northern Railroad.

that for many commodity groups Montana does serve as a significant termination region with bridging traffic still of importance, but in a secondary role.

Traffic Density

Figure 2-3 illustrates the 1980 Montana rail system traffic density. The gross ton-mile categories include not only the weight of the freight hauled, but also the weight of the locomotives and empty and loaded rolling stock. The traffic density map gives an indication of routing patterns employed and the demand for service along track segments.

As shown the rail line densities vary from high traffic levels to very low traffic levels with few medium traffic flows (i.e., 5 to 10 million gross tons per year). The most heavily utilized sections of track are the BN line running through Libby, Shelby, Havre and Wolf Point and the BN line running through Missoula, Helena, Bozeman, Billings and Glendive. These two lines both have an east-west traffic orientation with generally over or near 20 million tons of freight per year. The northern line tends to have the most consistent tonnage levels, (i.e., approximately 30 million tons) with nearly equal directional freight movements. This northerly line is considered to be the easiest rail route to physically reach the Pacific Northwest.

The more southerly high density route (i.e., through Helena) has more variance in tonnage levels. From the Idaho border to Huntley, approximately 20 million tons of freight per year are carried through numerous towns and cities and other freight termination and originating points. With the up-grading of the line through Helena this has now become the main line route for freight traffic. Beginning at Huntley a general directional imbalance in traffic exists with traffic from the west toward Huntley approximately 74 percent of the traffic heading toward Idaho from Huntley. In contrast traffic heading from the east toward Huntley is only 32 percent of the traffic heading from Huntley toward the east. This easterly traffic is dominated by coal shipments including shipments from the Kuehn and Big Sky areas. Total volumes of traffic in the eastern portion of this major east-west line are between 40 and 50 million tons.

Aside from the two major east-west routes three general areas of low freight density can be observed from Figure 2-2 i.e., lower traffic oriented around Great Falls, in the Butte area, and between Glendive and Snowden. In the Great Falls area increased tonnages are shown between Shelby and Great Falls. Similar increased tonnages are found between Garrison and Butte and on the UP line into Idaho. In addition to these general low density regions numerous isolated low density branch lines are observed.

Passenger Service

As shown on Figure 2-4 rail passenger service is provided across northern Montana through Snowden, Havre and Shelby. Service is provided three days per week in each direction. In October 1979, the National Rail Passenger Corporation (Amtrak) reduced the rail service along this northern route from four trains per week to three, as well as the total discontinuence of transcontinental east-west service across southern Montana via Billings and Butte. Proposals have been made for re-establishment of this southern service with Amtrak agreeing to study the market feasibility of re-establishing a southern passenger route. Table 2-7 summarizes the number of passengers using Montana's stations as well as various summary statistics.

Track Safety Classification

In general the mainline tracks operated by the BN, UP and BAP railroads are well maintained and allow maximum operating speeds between 40 and 60 miles per hour. Figure 2-5 illustrates four track safety classification categories as well as maximum trains speeds for Montana rail lines. These speeds are general maximums with occasional speed restrictions due to physical constraints, local town ordinances and interlockings or turnouts which require reduced speeds. Numerous speed restrictions of a local town nature can be found between Bozeman and Billings as well as restrictions of several miles in mountain areas for ascending and desending steep grades. As shown by Figure 2-5, several branch lines possess maximum speed restrictions below 25 miles per hour.

DOMINION OF CANADA

NORTH DAKOTA

SO. DAK.

IDAHO

WYOMING

BN

SOO

SDRA (BN)

LEGEND

- INTERSTATE MARKER
- U.S. NUMBERED MARKER
- STATE ROUTE MARKER
- INTERSTATE SYSTEM (PARTIALLY COMPLETE)
- PAVED ROAD
- IMPROVED-GRAVELED ROAD
- ELEVATED ROAD
- BLADED ROAD
- MESTRACTION BOUNDARY
- HELENA COUNTY SEATS
- EAST HELENA OTHER TOWNS

SOURCE: RAILROAD TRAFFIC DENSITY MAPS

0 10 20 30 40 50 MILES

LEGEND — W

- 0 ≤ 1
- 1 ≤ 0 3
- 3 ≤ 0 < 5
- 5 ≤ 0 < 10
- 10 ≤ 0 < 20
- 20 ≤ 0 < 30
- 30 ≤
- UNKNOWN

W Y O M I N G

0 = ANNUAL MILLION GROSS TON-MILES/MILE

RAILROAD TRAFFIC DENSITY

FIGURE 2-3

TABLE 2-7
RAIL PASSENGER TRAFFIC
AND SUMMARY STATISTICS
Empire Builder
Fiscal Year 1981

MONTANA STATION	TOTAL PASSENGERS ON AND OFF 1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total Year
Wolf Point	1,730	1,273	1,379	1,707	6,089
Glasgow	1,741	1,226	1,502	1,843	6,312
Malta	802	715	1,002	1,121	3,640
Havre	4,226	3,032	3,900	5,814	16,972
Shelby	2,119	1,203	1,764	1,592	7,678
Cut Bank	762	532	811	920	3,025
Browning	483	350	252	61	1,146
Glacier Park	6	0	1,069	6,778	7,853
Belton	121	74	736	2,978	3,909
Whitefish	7,252	9,522	6,465	9,277	32,516
Libby	1,084	666	868	1,287	3,905
Total	20,326	18,593	19,748	34,378	93,405

SUMMARY STATISTICS
FOR ENTIRE ROUTE

Passengers	296,500
Passenger Miles	240,965,278
Transportation Revenue	$17,349,500
Average Trip Length	813
Passenger Miles Per Train Mile	238.4

SOURCE: National Railroad Passenger Corporation

Line Clearances and Weight Limitations

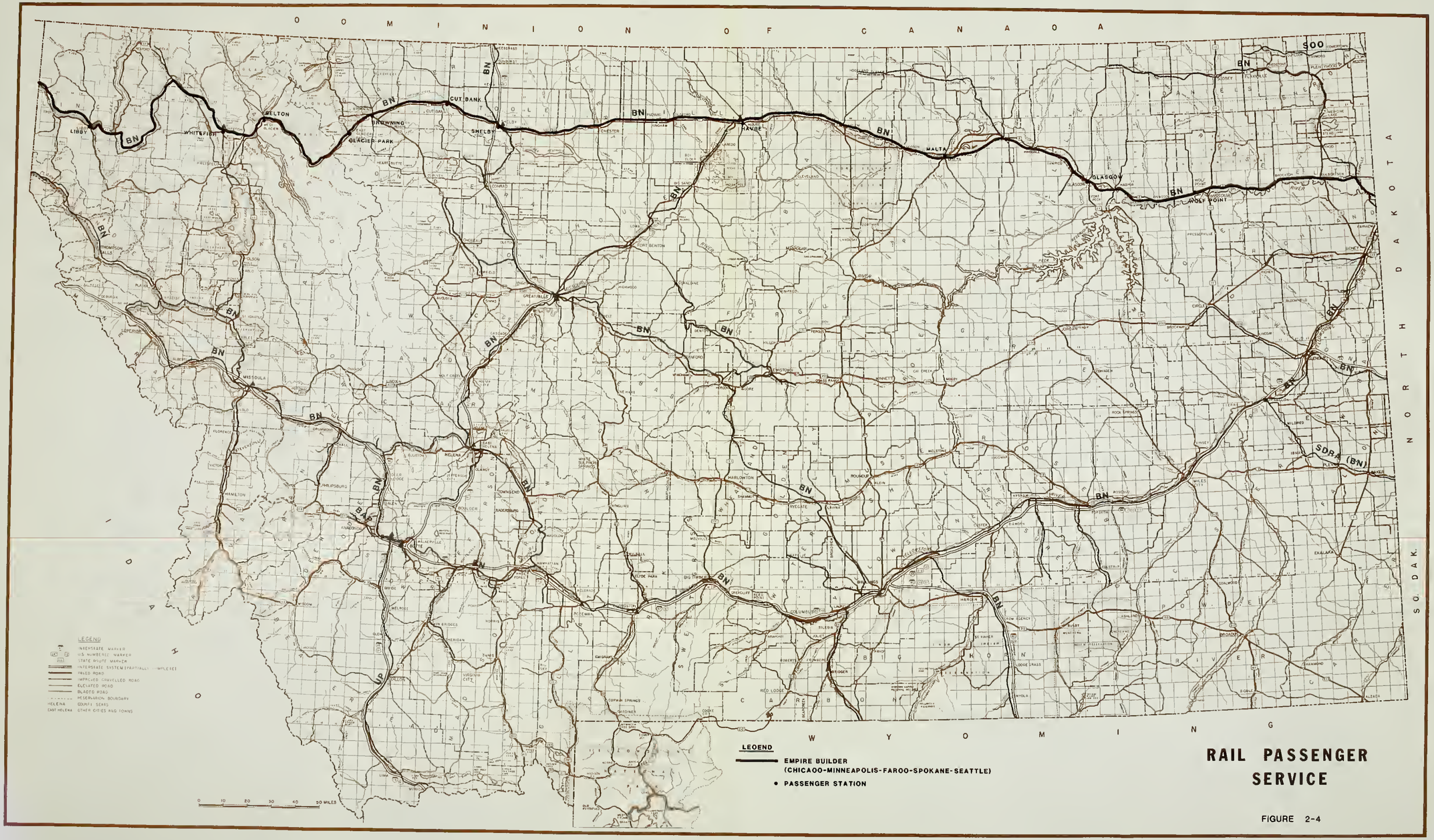
Figure 2-6 and Table 2-8 illustrate lines clearances for selected heights with Figure 2-6 also indicating weight limitations. Generally unrestricted line clearances begin at 2 feet above rail with a width clearance of 12 feet. This clearance profile proceeds continuously up in height from the rail with a 12 foot width clearance up to at least a 20 foot height. Major deviations from these clearance norms can be prohibitive for specific rail loads. Examples of more restricted clearances can be found at Figure 2-6 map code numbers 6, 5, 7, 29 and 30, however, these clearances are still adequate for most normal rail freight loads.(2) The data also shown on Figure 2-6 are maximum gross weight restrictions. These weight limits are for single four-axle cars and include the weight of the car as well as the lading. As shown, most main lines and branch lines possess a 263,000 pound maximum weight limit. A few lines, however, do have maximums of less than 263,000 tons which are not adequate to carry fully loaded covered hoppers. These lower weight restrictions are generally due to bridge ratings, lightweight rail, or poor ties. For the Burlington Northern, the largest carrier in the State, "gross weights are based on uniformly loaded 4-axle cars and coupled length of not less than 38 feet for 220,000 lbs. or less; 44 feet for 263,000 lbs. or less; 52 feet with minimum axle spacing of 6 feet and minimum wheel diameter of 38 inches for 315,000 lbs. or less." (3)

Strategic Military Rail System

Figure 2-7 illustrates lines identified as part of the "STRACNET" rail line network. This network was devised by the Military Traffic Management

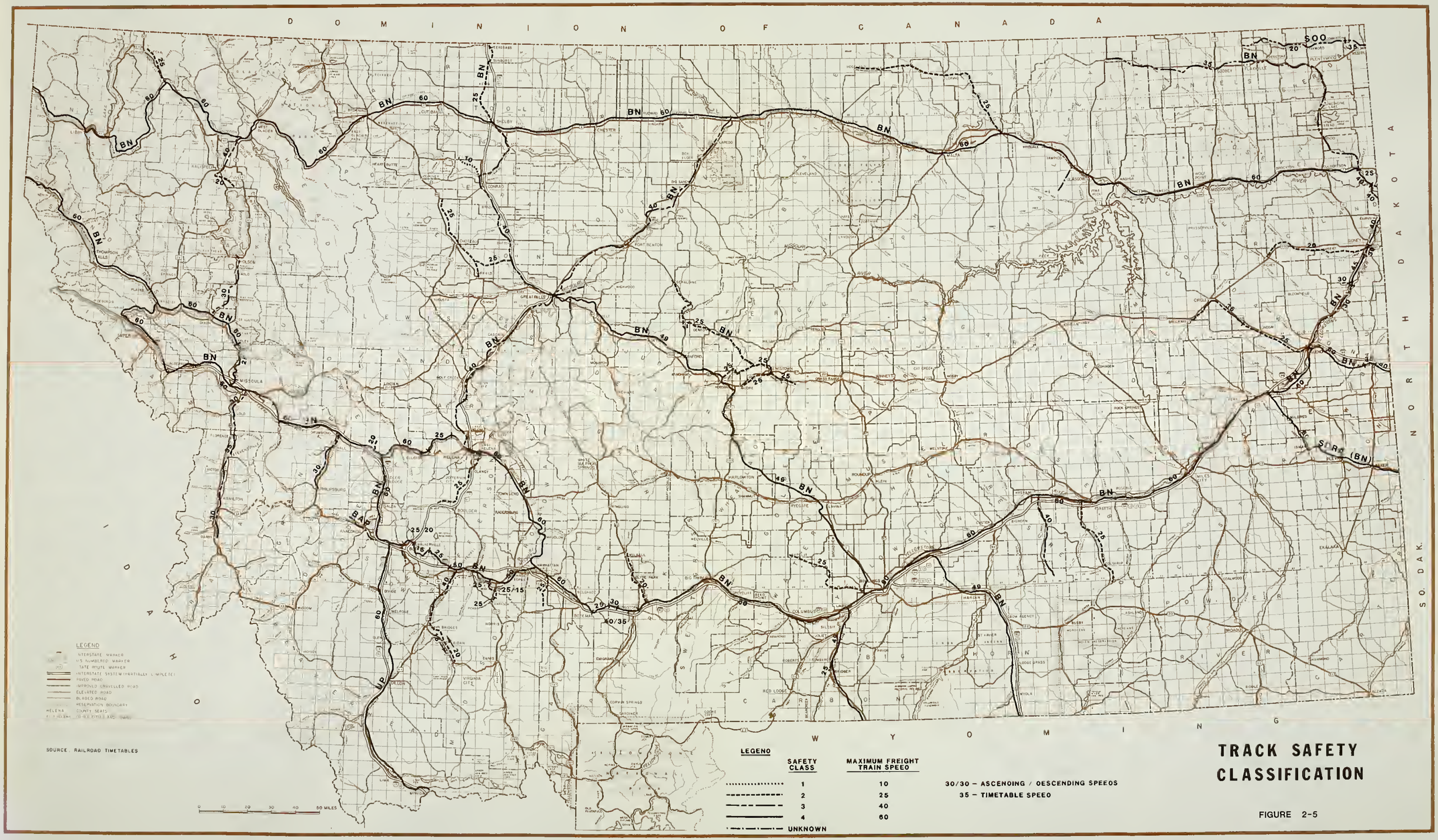
(2) The clearance data shown by Table 2-8 and Figure 2-6 are general in nature and therefore should not be used for determination of freight transport routings. Reference should be made to the Railway Line Clearances publication or to the carrier for specific movements.

(3) National Railway Publication Company, Railway Line Clearances, Volume 191, New York, 1981.



RAIL PASSENGER SERVICE

FIGURE 2-4



TRACK SAFETY CLASSIFICATION

FIGURE 2-5

Command for the purpose of integrating national defense railroad needs with programs of the Federal Railroad Administration, the State, the Association of American Railroads, and the railroads. The selected corridors within Montana include the Burlington Northern across the northern part of the State, and the portion of the southern east-west line west of Billings, and the line to Lincoln, Nebraska. An important connecting line is noted between Helena, Montana and Malmstrom Air Force Base at Great Falls.

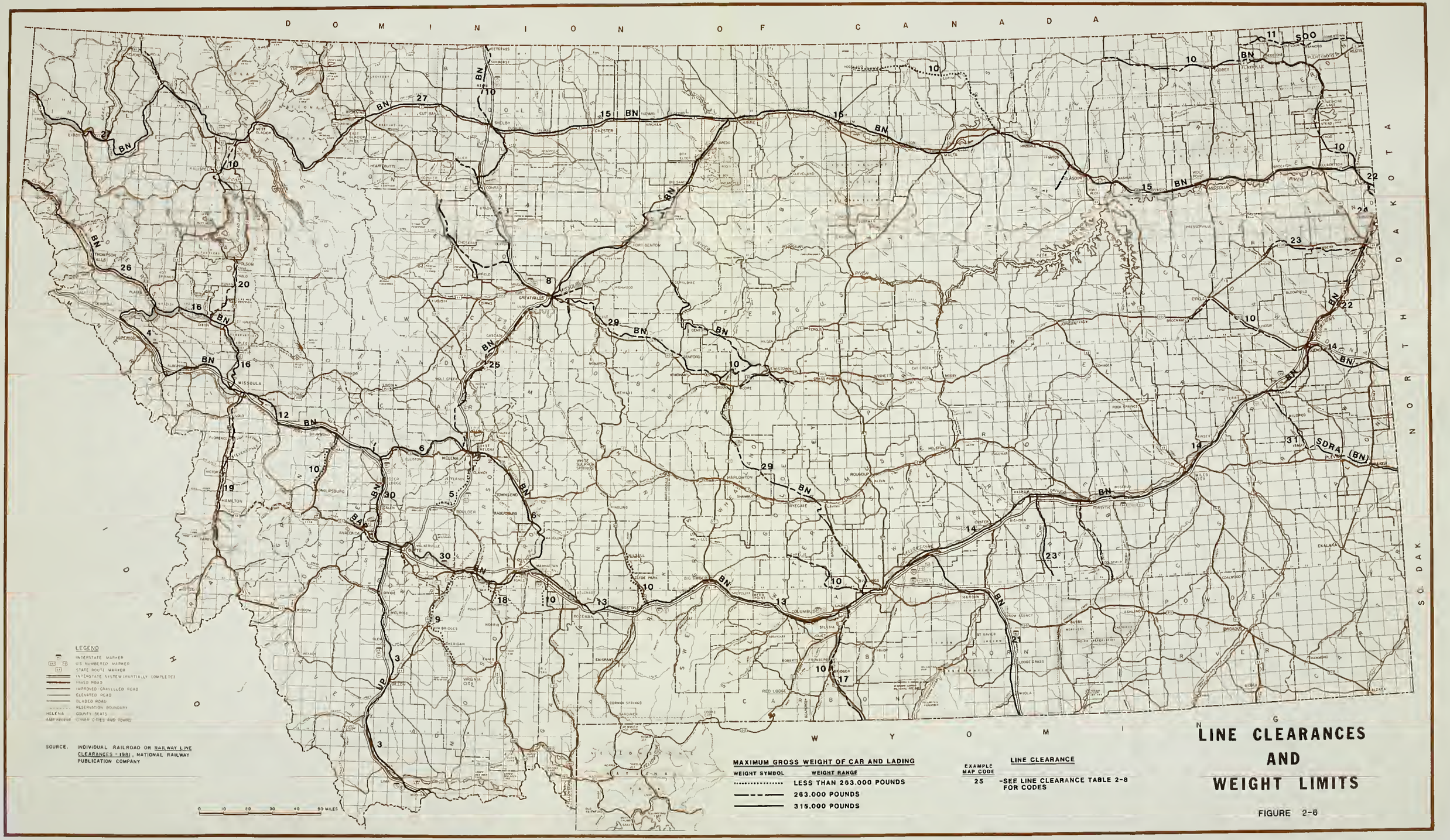
RPT70/F

TABLE 2-8
RAILWAY LINE CLEARANCES IN MONTANA

MAP CODE	CLEARANCES Height	CLEARANCES Width	MAP CODE	CLEARANCES HEIGHT	CLEARANCES WIDTH	MAP CODE	CLEARANCES HEIGHT	CLEARANCES WIDTH	MAP CODE	CLEARANCES Height	CLEARANCES Width
1	19' 0"	11' 6"	10	20' 0"	12' 0"	19	20' 0"	12' 0"	28	20' 0"	10' 6"
	19' 0"	11' 6"		20' 0"	12' 0"		20' 0"	12' 0"		19' 3"	12' 0"
	3' 3"	11' 6"		2' 0"	12' 0"		3' 9"	12' 0"		3' 6"	12' 0"
2	16' 6"	9' 6"	11	22' 0"	12' 0"	20	20' 0"	12' 0"	29	19' 6"	4' 2"
	12' 0"	11' 0"		22' 0"	12' 0"		20' 0"	12' 0"		15' 9"	12' 0"
	3' 3"	11' 0"		2' 0"	12' 0"		2' 6"	12' 0"		5' 0"	12' 0"
3	20' 0"	7' 10"	12	20' 0"	7' 5"	21	20' 0"	9' 3"	30	19' 3"	5' 8"
	18' 3"	12' 0"		17' 6"	12' 0"		18' 0"	12' 0"		17' 0"	12' 0"
	2' 3"	12' 0"		2' 9"	12' 0"		2' 0"	12' 0"		3' 9"	12' 0"
4	20' 0"	8' 2"	13	20' 0"	12' 0"	24	20' 0"	10' 4"	31	20' 0"	10' 2"
	16' 9"	12' 0"		20' 0"	12' 0"		19' 0"	12' 0"		18' 9"	12' 0"
	2' 0"	12' 0"		2' 9"	12' 0"		2' 6"	12' 0"		2' 0"	10' 4"
5	17' 6"	2' 0"	14	20' 0"	10' 7"	23	20' 0"	12' 0"			
	13' 3"	12' 0"		19' 6"	12' 0"		20' 0"	12' 0"			
	2' 9"	12' 0"		3' 6"	12' 0"		4' 0"	12' 0"			
6	20' 0"	6' 10"	15	20' 0"	10' 11"	24	20' 0"	10' 2"			
	10' 0"	12' 0"		19' 3"	12' 0"		19' 0"	12' 0"			
	5' 6"	12' 0"		3' 6"	12' 0"		2' 9"	12' 0"			
7	20' 0"	1' 0"	16	20' 0"	12' 0"	27	19' 0"	6' 10"			
	13' 9"	12' 0"		20' 0"	12' 0"		15' 0"	12' 0"			
	2' 0"	12' 0"		2' 6"	12' 0"		4' 6"	12' 0"			
8	19' 3"	9' 4"	17	20' 0"	7' 8"	26	20' 0"	3' 0"			
	18' 3"	12' 0"		17' 9"	12' 0"		16' 6"	12' 0"			
	3' 9"	12' 0"		3' 3"	12' 0"		2' 0"	12' 0"			
9	20' 0"	12' 0"	18	20' 0"	12' 0"	27	20' 0"	4' 6"			
	20' 0"	12' 0"		20' 0"	12' 0"		15' 9"	12' 0"			
	2' 0"	12' 0"		2' 9"	12' 0"		3' 6"	12' 0"			

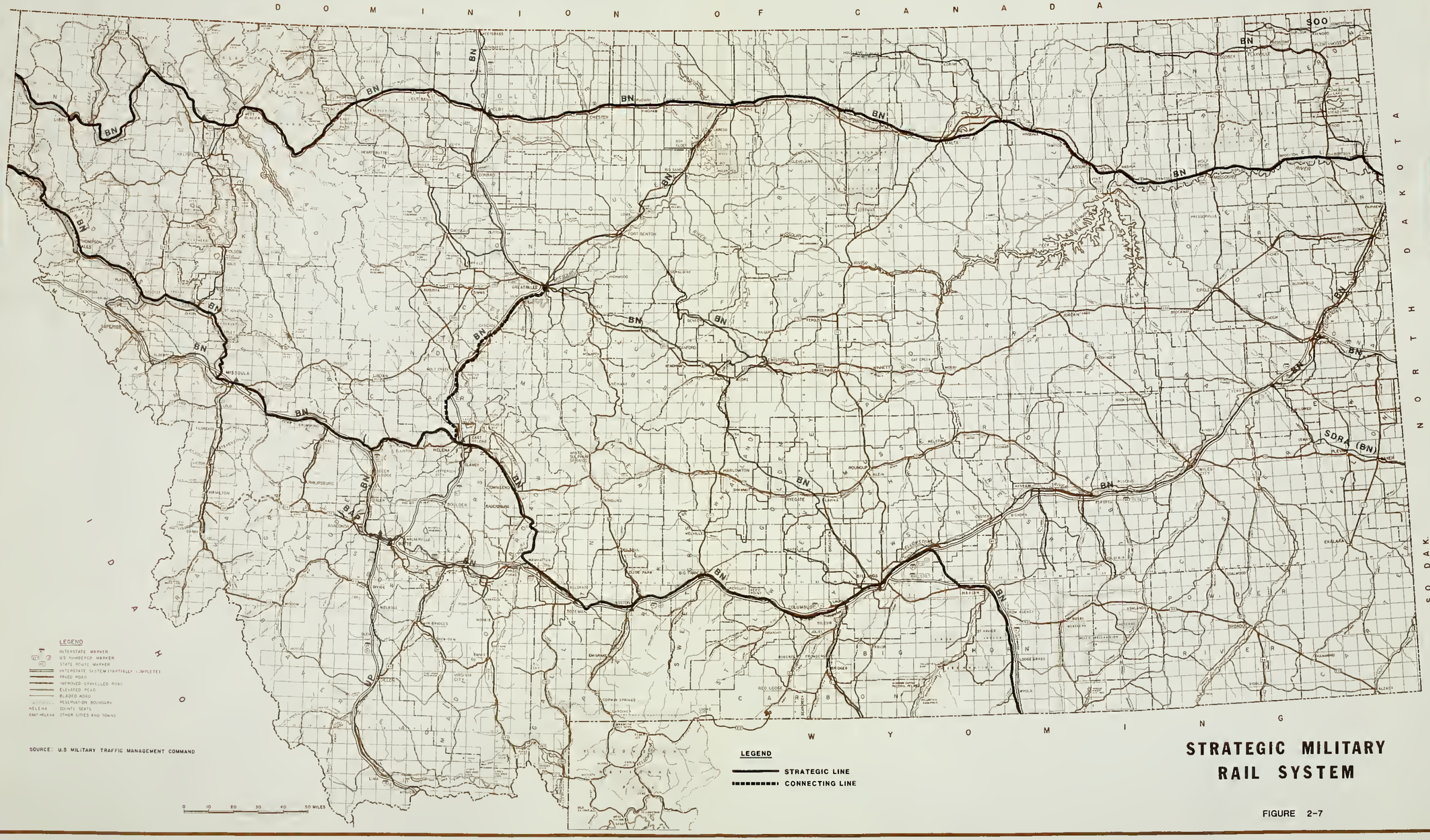
Key: Maximum Height at Width (x)
Maximum Height of Maximum Width (x)
Minimum Height of Maximum Width (x)
See Figure 2-6 for map codes.

SOURCE: Railway Line Clearances, Volume 191, National Railway Publication Company, New York, 1981.


D O M I N I O N O F C A N A D A
N O R T H D A K O T A
S. DAK
I D A H O
W Y O M I N G
BN
SOO
SDRA (BN)
LEGEND
INTERSTATE MARKER
U.S. NUMBERED MARKER
STATE ROUTE MARKER
INTERSTATE SYSTEM (PARTIALLY COMPLETED)
PAVED ROAD
IMPROVED GRAVEL/CD ROAD
ELEVATED ROAD
GRADED ROAD
RESERVATION BOUNDARY
HELENA COUNTY SEATS
OTHER CITIES AND TOWNS
SOURCE: INDIVIDUAL RAILROAD OR RAILWAY LINE CLEARANCES - 1981, NATIONAL RAILWAY PUBLICATION COMPANY
0 10 20 30 40 50 MILES
MAXIMUM GROSS WEIGHT OF CAR AND LADING
WEIGHT SYMBOL
WEIGHT RANGE
LESS THAN 263,000 POUNDS
263,000 POUNDS
315,000 POUNDS
LINE CLEARANCE
EXAMPLE MAP CODE
25 -SEE LINE CLEARANCE TABLE 2-8 FOR CODES

LINE CLEARANCES AND WEIGHT LIMITS

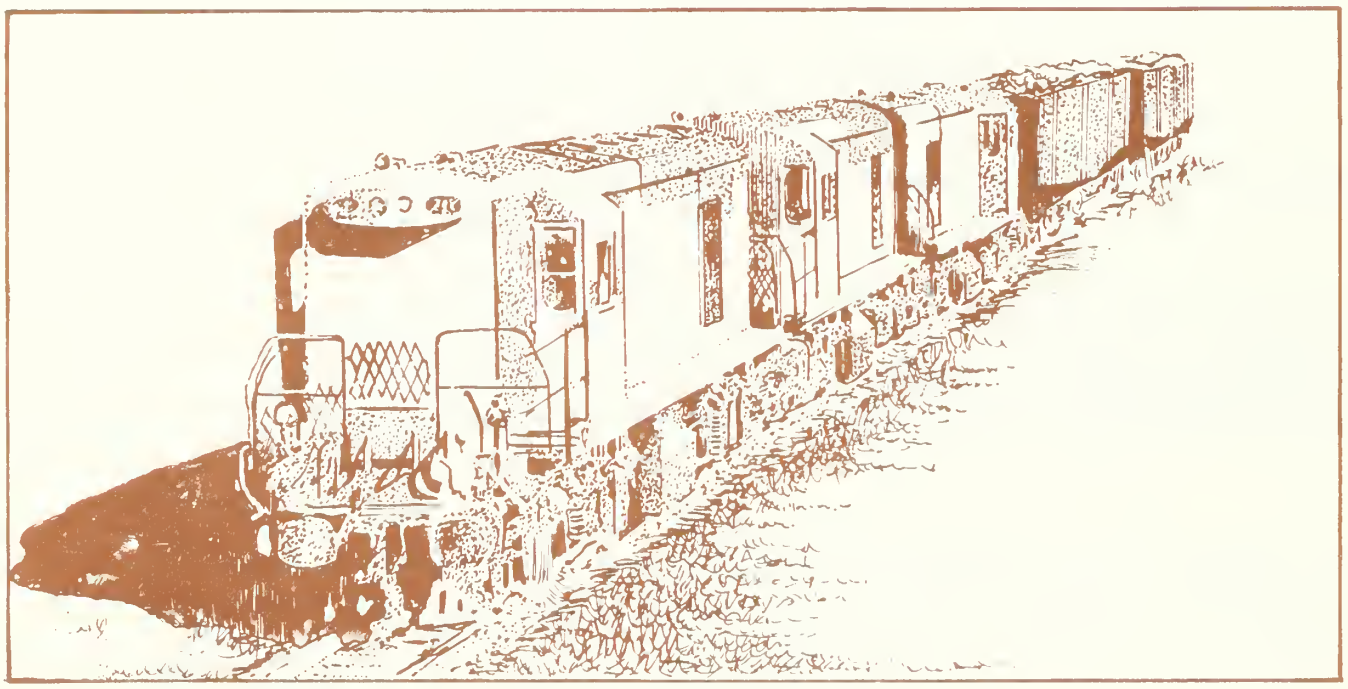
FIGURE 2-6



STRATEGIC MILITARY RAIL SYSTEM

FIGURE 2-7

LINES ELIGIBLE FOR ASSISTANCE



CHAPTER 3

CHAPTER 3
LINES ELIGIBLE FOR ASSISTANCE

The railroad legislation of the past decade has recognized that certain lines may be unprofitable to the owning railroads but at the same time that their abandonment could create economic hardship on communities which lost rail service. Accordingly a federal program was initiated to study lines proposed for abandonment and to seek solutions to enhance the financial viability of certain lines or to mitigate abandonment impacts.

Lines Eligible for Assistance

The Local Rail Services Assistance Program provides federal funds to states on a matching basis for rail planning and project implementation purposes on eligible lines. In general terms, eligible lines include:

- Lines abandoned since October 1, 1978;
- Lines which are identified by the owning carrier on its Systems Diagram Map in Categories I, II, or III; and
- Light density lines carrying less than 3 million gross ton-miles (MGTM) per mile per year or with approval of the U.S. Department of Transportation lines which carry between 3 and 5 MGTM per mile annually.

Lines in Montana which are eligible for assistance are illustrated in Figure 3-1. Also shown are the lines that have been analyzed previously or in this Update.

Abandoned Lines - All rail lines abandoned after October 1, 1978, are eligible for assistance to mitigate the effect of abandonment. At the time of this Update, 1,048 miles of abandoned line are eligible for assistance as listed in Table 3-1. As shown, the largest amount of abandoned mileage

TABLE 3-1

ABANDONED LINES ELIGIBLE FOR ASSISTANCE

LINE	RR	MILES	COUNTY
Choteau/Agawan	MILW	14.4	Teton
Dorsey/White Sulphur Springs	WSSYP	19.3	Meagher
Elephant Spur	BN	5.0	Granite
Glasgow/Glasgow AFB	BN	18.8	Valley
Great Falls/Fairfield	MILW	42.8	Cascade, Teton
Great Falls/Geraldine	MILW	60.0	Cascade, Choteau
Haugan/Idaho State Line	BN	18.9	Mineral
Lewistown/Winifred	MILW	42.7	Fergus
Livingston/Brisbin	BN	10.3	Park
Montana City/Basin	BN	33.6	Jefferson
Moore/Harlowton	MILW	45.4	Fergus, Judith Basin, Wheatland
North Dakota State Line/Carlyle	BN	2.9	Wibaux
Ringling/Dorsey	MILW	3.5	Meagher
St. Regis/Haugan	BN	19.4	Mineral
Silesia/Red Lodge	BN	34.5	Carbon
Terry/Idaho State Line	MILW	667.0	Praire, Custer, Rosebud, Mussellshell, Golden Valley, Wheatland, Meagher, Gallatin, Broadwater, Madison, Jefferson, Silver Bow, Powell, Granite, Missoula, Mineral
Yellowstone Branch	UP	9.2	Gallatin
TOTAL		1048.3	

SOURCE: Interstate Commerce Commission abandonment decisions.

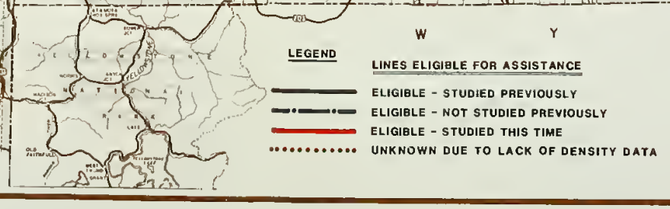
O O M I N I O N O F C A N A D A

N O R T H D A K O T A

S O. D A K.

O H I O

W Y O M I N G


LEGEND
LINES ELIGIBLE FOR ASSISTANCE
ELIGIBLE - STUDIED PREVIOUSLY
ELIGIBLE - NOT STUDIED PREVIOUSLY
ELIGIBLE - STUDIED THIS TIME
UNKNOWN DUE TO LACK OF DENSITY DATA

CODES FOR ELIGIBILITY TYPES

L3	LESS THAN 3 MILLION GROSS TON-MILES/MILE
L5	BETWEEN 3 & 5 MILLION GROSS TON-MILES/MILE
I	LINES WHICH THE OWNING RAILROAD INTENDS TO ABANDON WITHIN 3 YEARS
II	LINES UNDER STUDY BY THE OWNING RAILROAD FOR POSSIBLE FUTURE ABANDONMENT
III	LINES FOR WHICH AN ABANDONMENT APPLICATION IS PENDING BEFORE THE ICC
A	ABANDONED
C	COAL LINE-NOT ELIGIBLE BUT INCLUDED FOR INFORMATION

RAIL LINE ASSISTANCE ELIGIBILITY

FIGURE 3-1

is from the Milwaukee Road which is in liquidation. Virtually all of the abandoned lines have had or will soon have their trackage removed and the right-of-way sold. Therefore, the rebuilding of these lines would be extremely expensive.

System Diagram Lines - Each railroad is required by law to publish annually a map depicting its system. Lines on these maps are designated in five categories:

- Category I: All lines which the carrier may seek to abandon within three years;
- Category II: All lines under study by the carrier which may be subject to future abandonment attempts;
- Category III: All lines for which an abandonment application is pending before the ICC;
- Category IV: All lines that are being operated under the rail service continuation provisions in the 3R Act (Montana not eligible under the 3R Act); and
- Category V: All other lines the carrier owns or operates.

Lines in Categories I, II, and III are eligible for assistance to prevent abandonment or to mitigate abandonment impacts. As indicated in Table 3-2, 13 lines totalling 319 miles are in Category I. One line from Montana City to Basin was in Category III but was abandoned in August, 1982. There are no Category II lines at this time. Total mileage in Category I represents 8.6 percent of Montana's rail system (excluding yard track and sidings).

Light Density Lines - This last group of eligible lines are those which carry relatively little traffic but have not been identified for possible abandonment, i.e., not in Category I, II, or III. Lines carrying

TABLE 3-2

SYSTEM DIAGRAM LINES ELIGIBLE FOR ASSISTANCE

LINE	RR	MILES	COUNTY
Category I - Potential Abandonment Within 3 Years			
Big Sandy/Ft. Benton	BN	40.8	Choteau
Brazil Creek Spur	BN	18.7	Valley
Butte/Whitehall	BN	28.8	Silver Bow, Jefferson
Choteau/Pendroy	BN	21.2	Teton
Circle/Brockway	BN	10.5	McCone
Drummond/Philipsburg	BN	26.3	Granite
Fromberg/Bridger	BN	6.1	Carbon
Hesper/Rapelje	BN	38.1	Yellowstone, Stillwater
Manhatten/Anceney	BN	15.2	Gallatin
Mission/Wilsall	BN	22.9	Park
Phosphate Spur	BN	3.6	Powell
Saco/Hogeland	BN	77.5	Phillips, Blaine
Sappington/Harrison	BN	9.5	Gallatin, Madison
TOTAL		319.2	

SOURCE: Burlington Northern System Diagram map.

less than 3 million gross ton-miles per mile per year(1), or, with the approval of the U.S. Department of Transportation, between 3 and 5 MGTM per mile per year are eligible. These are lines which the owning railroad has listed in Category V meaning that abandonment is not imminent, but due to the low traffic level, an abandonment could conceivably occur in the medium to long term. Assistance for lines in this group is generally designed to improve the physical condition of a line so that more economical operations can be conducted. The density criterion is simply the means by which eligibility for federal assistance is established. It is not necessarily a measure of profitability.

A large amount of trackage in Montana can be considered as light density according to this definition. Table 3-3 lists Montana's light density lines which are not already in Categories I, II, or III. Approximately 1,270 miles in this State carry less than 3 MGTM per mile (1,000 less than 1 MGTM per mile), and another 180 miles carry between 3 and 5 MGTM per mile. Approximately 39 percent of Montana's rail system (excluding yard track and sidings) is light density but is not listed in Categories I, II, or III. As shown on the map, virtually every branch line and even some main lines are technically eligible for assistance under this program.

Selection of Lines for Detailed Analysis

Since federal funding is limited and 51 percent of Montana's existing rail system is eligible for assistance (plus certain abandoned miles), the State has initiated a program where the more critical lines receive initial attention and analysis. Then lines which are in less danger of abandonment are analyzed as resources permit. Basically the lines fall into three groups and are treated as follows:

- Previously Studied Lines - Monitor to determine whether or not circumstances have changed significantly since the previous detailed analysis.

(1) Density is measured in terms of annual gross ton-miles per mile, (the total weight of cars, lading, locomotives, cabooses, and empties times distance travelled divided by the length of the line).

TABLE 3-3

LIGHT DENSITY LINES ELIGIBLE FOR ASSISTANCE
AND NOT IN CATEGORIES I, II, OR III

LINE	MILES	DENSITY RANGE (1)	COUNTY
Burlington Northern			
Stryker/Eureka	23.2	0-1	Lincoln
Columbia Falls/Somers	24.9	0-1	Flathead
Dixon/Polson	33.4	0-1	Sanders, Lake
DeSmet/Paradise	64.2	0-1	Missoula, Sanders
Missoula/Darby	65.9	0-1	Missoula, Ravalli
Butte/Garrison	51.5	3-5	Silver Bow, Deer Lodge, Powell
Three Forks/Whitehall	31.4	0-1	Gallatin, Jefferson
Whitehall/ Alder	45.6	0-1	Jefferson, Madison
Butte/Newcomb	9.5	0-1	Silver Bow
Helena/Great Falls	98.1	1-3	Lewis & Clark, Cascade
Shelby/Sweet Grass	38.5	1-3	Toole
Power/Choteau	28.7	0-1	Teton
Valier Jct./Valier	17.2	0-1	Pondera
Fairfield/Eastham Jct.	10.8	0-1	Teton
Lavin Spur	4.4	0-1	Cascade
Great Falls/Ft. Benton	44.6	1-3	Cascade, Choteau
Big Sandy/Pacific Jct.	31.5	1-3	Choteau, Hill
Great Falls/Mossmain	222.7	0-1	Cascade, Judith Basin, Wheatland, Golden Valley, Yellowstone
Great Falls/Loy Spur	12.8	0-1	Cascade
Moccasin/Spring Creek	21.5	0-1	Judith Basin, Fergus
Lewistown/Geraldine	74.5	0-1	Fergus, Choteau
Lewistown/Heath	10.5	0-1	Fergus
Lewistown/Moore	17.6	0-1	Fergus
Glendive/Circle	53.7	0-1	Dawson, McCone
Newlon Jct./Richey	45.4	0-1	Richland, Dawson
Cecil Jct./Cecil	5.0	0-1	Dawson
Bainville/Opheim	146.6	0-1	Roosevelt, Sheridan, Daniels, Valley
Union Pacific			
Idaho State Line/Butte	132.3	3-5	Beaverhead, Silver Bow
Soo Line			
North Dakota State Line/ Whitetail	56.9	1-3	Daniels, Sheridan
Butte, Anaconda, and Pacific	31.9	0-1	Silver Bow, Deer Lodge
Total	1,454.8		

(1) Density in terms of millions of annual gross ton-miles per mile. Includes weight of cars, freight, locomotives, and cabooses.

SOURCE: Railroad traffic density maps.

- System Diagram Lines - Newly designated lines in Categories I, II and III are studied in detail at the time of their categorization. They are reviewed as above if they have already been analyzed.

- Light Density Lines - All branch lines which carry less than 3 MGTM per mile are studied. Light density main lines and those carrying between 3 and 5 MGTM per mile are studied as resources permit.

Table 3-4 indicates the lines which have been selected for study by the State of Montana. Several were analyzed in detail in the original rail plan or the 1980 supplement. The current status of these lines are summarized in the next chapter. The others are the subject of the remainder of this report. Figure 3-1 illustrates all lines that have been analyzed by Montana.

Types of Assistance

Under the federal program, four types of project assistance can be applied to eligible lines. (In addition to meeting the criteria discussed earlier, lines are eligible only if their analysis has appeared in the state rail plan, an annual update, or an amendment.) Current regulations require that only 70 percent of the project cost can be funded by the federal program. The other 30 percent must come from a non-federal source such as the State of Montana, county governments, regional authorities, shipper groups, or the owning railroad.

Federal assistance may be applied to lines in several ways or in a combination:

Rehabilitation Assistance - Funds may be used to place eligible lines into stable physical condition so that long term operating efficiencies can be obtained. A line is eligible for such assistance under the federal

TABLE 3-4

LINES ANALYZED BY STATE OF MONTANA

LINE	RR	MILES	STATUS (1)
	1982 Update		
Bainville/Opheim	BN	146.6	LDL
Big Sandy/Ft. Benton	BN	40.8	I
Brazil Creek Spur	BN	18.7	I
Butte/Whitehall	BN	28.8	I
Circle/Brockway	BN	10.5	I
Columbia Falls/Somers	BN	24.9	LDL
Dixon/Polson	BN	33.4	LDL
Drummond/Philipsburg	BN	31.2	I
Durant/Brown	BAP	18.2	LDL
Fromberg/Bridger	BN	6.1	I
Glendive/Circle	BN	53.7	LDL
Lavin Spur	BN	4.4	LDL
Manhatten/Anceney	BN	15.2	I
Mission/Wilsall	BN	22.9	I
Montana City/Basin	BN	33.6	III
Newlon Jct./Richey	BN	45.4	LDL
Nichols Wye/Big Sky	BN	39.1	(2)
North Dakota State Line/Whitetail	SOO	56.9	LDL
Phosphate Spur	BN	3.6	I
Sarpy Jct./Kuehn	BN	35.9	(2)
Stryker/Eureka	BN	23.2	LDL
Three Forks/Whitehall	BN	31.4	LDL
Valier Jct./Valier	BN	17.2	LDL
Subtotal 1982 Update		741.7	
	Previously Analyzed (3)		
Choteau/Fairfield	BN	19.1	LDL
Choteau/Pendroy	BN	21.2	I
Great Falls/Loy Spur	BN	12.8	LDL
Hesper/Rapelje	BN	38.1	I
Lewistown/Geraldine	BN	74.5	LDL
Lewistown/Heath	BN	10.5	LDL
Lewistown/Moore	BN	17.6	LDL
Missoula/Darby	BN	65.9	LDL
Moccasin/Spring Creek	BN	21.5	LDL
Power/Eastham Jct.	BN	21.2	LDL
Saco/Hogeland	BN	77.5	I
Sappington/Harrison	BN	9.5	I
Whitehall/Alder	BN	45.6	LDL
Subtotal Previously Studied		435.1	
	Total	1,176.7	

(1) I - Category I, could be abandoned within 3 years.
II - Category II, abandonment under study by railroad.
III - Category III, abandonment decision pending before ICC.
LDL - Light density line not subject to abandonment at this time.

(2) These two lines do not meet assistance criteria due to high traffic volume but are reviewed because they carry coal.

(3) Does not inlcude abandoned lines.

program if the line is not abandoned and/or any pending abandonment application is withdrawn by the carrier before federal funds are committed; and the line is certified by the owning carrier as having carried less than 3 MGTM per mile during the prior year, or DOT has approved a line carrying between 3 and 5 MGTM per mile during the prior year.

New Construction Assistance - Sometimes the financial viability of a line can be enhanced by constructing a connection track to another rail line or by the lengthening of an existing siding. Impacts of abandonment can also be reduced by construction of a team track at a nearby location where one does not now exist. The assistance would be an amount required to build such facilities. Rail lines eligible for this assistance are the same as those described under rehabilitation.

Substitute Service Assistance - To alleviate the adverse impacts of abandonment, assistance could be offered to provide alternative means of transport in a manner less expensive than continuing rail service. Rail user relocation costs are also included in this category.

Acquisition Assistance - Finally, abandoned lines can be acquired under this program. This entails the offer of an amount needed to purchase the line for operation by another carrier. If a purchaser acquires an abandoned line to start a short line railroad, the purchaser must first apply to the ICC for a Certificate of Public Convenience and Necessity to operate the line. Once the Certificate is granted, then the line is eligible for rehabilitation or construction assistance.

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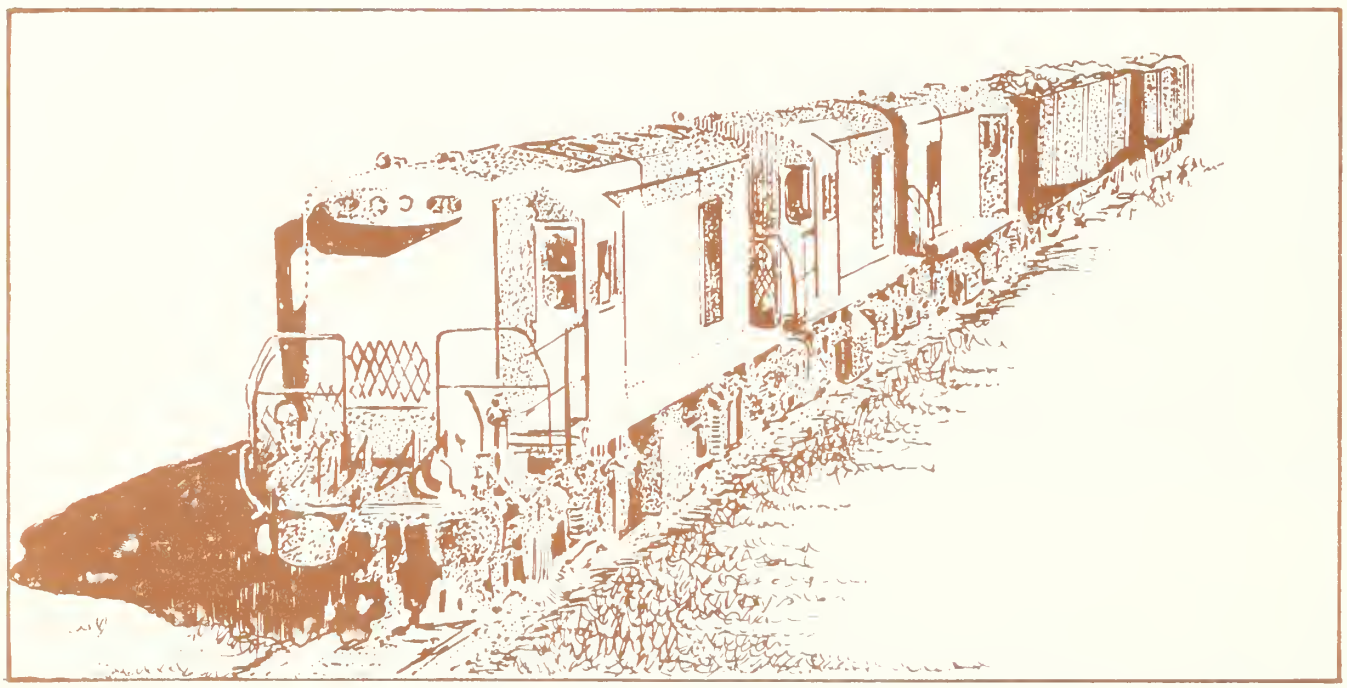
RAIL LINE ANALYTICAL PROCEDURES AND DATA SOURCES



CHAPTER 4

CHAPTER 4
RAIL LINE ANALYTICAL PROCEDURES AND DATA SOURCES

The State of Montana analyzes its lines in an impartial manner in order to compare the relative economic benefits of line assistance with the relative public cost of such assistance. The basic analytical tool applied to these lines is benefit/cost analysis. However, other analyses include economic growth potential, environment, and energy. The benefit-cost studies are based on standard principles of economic analysis. Costs are either program outlays or economic disbenefits associated with the assistance project. Benefits are either increases in the value of output or real reduction in economic cost.

General Principles and Procedures

This section describes how the lines were analyzed, and the next section describes the manner in which the lines were evaluated for assistance purposes. Together these two sections constitute this State's benefit/cost methodology used to establish eligibility for federal railroad assistance funds. The analytical methodology considers projects in four areas: rail rehabilitation as a part of continued service, rail line construction as a part of continued service, acquisition, and substitute service. Each of these assistance types was evaluated individually or in combination if an initial analysis indicated the practicality of conducting a more detailed analysis.

Costs - Potential assistance was evaluated for each line if an initial analysis indicated that such assistance might be feasible. Acquisition assistance was evaluated based on approximate values of right-of-way and the net salvage value of the track (materials) and other facilities. Rural land values vary by location but were standardized at an assumed value ranging from $150 to $1,500 per acre based on the type of land and location. These generalized values were provided by the Montana Department of Highways. Actual final acquisition costs of course could vary depending upon purchase negotiations between the parties. To operate these lines by

another carrier such as a short line could also necessitate rehabilitation. Costs for new construction and substitute service were developed on a case-by-case basis.

Rehabilitation cost estimates were developed by the Study Team on the basis of field inspections. The calculated rehabilitation cost is defined to be the amount necessary to stabilize a line so that normal annual maintenance can then be made to keep the line at an appropriate standard (usually 25 mph speed limit at a minimum). Unit costs for materials and labor, for construction and rehabilitation alternatives, were determined based upon information furnished by railroads, materials suppliers, and the team's experience in railroad engineering. These unit costs are tabulated with each detailed line analysis.

Any economic disbenefits of the alternative projects were also counted as costs. These disbenefits would include, for example, the railroad operating cost and return on value if the project would cause a retention of rail service.

Benefits - The differences between conditions with and without an assistance project are considered to be the benefits of the project. These benefits include economic costs avoided or gains achieved. If a line is abandoned, then the former rail users and the surrounding community can experience higher costs in order to move their product or to receive goods from elsewhere. The abandoning railroad on the other hand, enjoys a benefit by ridding itself of an unprofitable line. Additionally, shippers and the community can also experience changes in employment, tax base, personal income, and others. As used in this analysis for all lines that were analyzed in detail, benefits are defined as those incremental economic impacts which could occur after abandonment but which could be prevented by the continuation of rail service. Finally, under certain circumstances, benefits also include the improved service levels that may follow after rehabilitation as well as railroad operating savings.

Analysis Perspective - It is especially important to define the perspective from which the analysis is made. For example, it might be argued

that the abandonment of an unprofitable branch line could cause a shipper or receiver to close with a resultant loss of employment and personal income and increased driving distance for the shipper's customers or suppliers. From a local viewpoint, this closure has a large impact because the user might have been the only similar business for miles. Yet, the loss in one community might be offset by increased railroad efficiency which could benefit many communities, or might cause that business to reopen in another community. From the railroad's viewpoint, the abandonment of an unprofitable line is obviously a benefit. That possible benefit to other communities or a railroad is, of course, of little comfort to the town that has lost a business because of a rail abandonment. However, the viewpoint adopted for use in this analysis is that of weights and balances between all perspectives. The State must represent all citizens equally. Where a transfer cost or cost savings is made, for example, between communities or from the state government, the transfer is noted but is not included as a statewide economic cost or benefit.

The calculation of economic benefits wherein abandonment is the likely outcome if no action is taken involves several components as discussed below. Central to the analysis is the reaction by shippers to the loss of rail service. This reaction was ascertained via interviews utilizing the forms presented in Appendix B. These interviews were conducted by the Department in the Spring of 1982.

Shipper Data - Customer lists were obtained from the railroad companies and were supplemented by other sources and by the Department. These customers lists were verified, and an independent interview was held. To aid in this analysis, certain information concerning each shipper/receiver was compiled on the standard interview forms. Included on these forms were questions relating to:

- Nature and size of business;
- Rail facilities utilized;
- Commodities shipped and/or received by rail;
- Quantities of shipments;

- Origins and/or destinations;
- Proportion of rail usage to total transportation;
- Alternatives to present rail service; and
- Impacts should branch line be abandoned.

Through the use of these standard questions, insights were obtained regarding the potential effects on shippers and receivers of a possible loss of direct rail service. These impacts were categorized and analyzed as follows.

Rail Dependency - In some cases, the rail users were found to be relatively dependent upon rail service because of the bulk nature of the commodities involved, distances to origins/destinations or volume of the movements. For these reasons, these commodities could not be hauled practically or economically by another mode. Other rail users were found to be less dependent upon rail because of smaller volumes, short distances to origins/destinations, or commodities that would lend themselves to transport by other modes. Impacts of rail abandonment on such users thus would tend to be less severe. Each business which used rail was assessed according to these criteria, and shippers with extreme rail dependency were identified.

Employment/Income - In a study of this nature, it is impossible to predict exactly what each shipper/receiver would do when faced with loss of rail service. Some observations, however, can be made. The most extreme case of direct employment impact would be if a business were forced to close. Less severe would be the case of a business which was forced to scale down operations or forego planned expansions. In other cases, it would be possible for direct employment levels to increase because of the necessity of adding personnel such as truck drivers. Possible impacts in this area were obtained in the interviews, and a total impact was determined for each line.

Since these impacts also have direct effect on the communities, the total loss or gain in employment was reported for each branch line. Indirect employment losses were also estimated using multipliers based on

the types of employment in the area of each line. All employment impacts were assumed to be short term unless specific information indicated otherwise.

Just as line abandonment affects employment, it also affects the total payroll of workers in a community. Through the rail user survey, potential job losses or gains were identified along with the wage levels of the impacted jobs. Indirect employment losses were also estimated using area multipliers.

Cost Impacts - The principal assessment criterion of shipper/receiver impact is the cost change brought about by a change in service. For businesses which do not close, this cost change is generally an increase in transport and handling costs. Businesses located on their own sidings can load or unload directly, but must incur additional handling costs if a loss of rail service necessitates loading or unloading between a rail car and a truck. Additional costs are also incurred in transporting the commodity from the unloading point to the place of business. All-truck movements were also evaluated if the interviews identified this reaction to abandonment. The method was normally used to estimate increased transport costs unless the user had investigated other transport means and quantified the cost differential. The cost of alternative transportation will naturally vary according to the specific characteristics of the branch line traffic and the available alternatives. In an effort to standardize the analysis, common unit economic costs were applied to each branch line.

The unit trucking and transfer costs on a per ton and ton-mile basis were developed utilizing current economic costs in a manner similar to the procedure derived in a study prepared for the Federal Railroad Administration (1). The cost of construction or relocating any necessary unloading facilities was also included if found to be appropriate.

Railroad costs were also calculated using system average unit costs provided by the carriers and supplemented by regional average unit costs

(1) An Economic Analysis of Upgrading Rail Branch Lines: A Study of 71 Lines in Iowa, C.H. Baumel, et al., Iowa Department of Transportation and Iowa State University, for Federal Railroad Administration, March 1976.

contained in an Interstate Commerce Commission publication (2). This supplemental source has 1977 data for several railroads in the region, and these data were updated by inflation factors provided by the Commission.

Finally, current unit prices (freight rates) were obtained from the rail users and from published tariffs. These rates and the costs described above were then used to estimate rail line profitability.

Highway/Bridge Costs - In most cases, rail lines potentially subject to abandonment and light density lines carry relatively little rail traffic for a variety of reasons. Thus the loss of rail service usually adds only a relatively small number of trucks to the local highway network on a daily basis. This incremental increase in trucks traffic is often quite small in comparison to the existing truck traffic. Therefore, it cannot be said that the loss of a rail line will by itself be sufficient cause for major road and bridge expenditures for facilities which in some cases already are in need of additional work. For this reason the calculation of highway and bridge costs attributable to a rail line abandonment were considered where there was a significant change in highway traffic levels. Estimates of highway and bridge needs for facilities in the area of each analysis line were listed.

Energy - These impacts are two-fold: a savings of rail fuel due to the cessation of train operations and an increase in truck and/or barge fuel consumption due to additional truck/barge trip requirements. Fuel changes were estimated utilizing the following energy consumption factors (3):

- Rail, short haul - 55 ton-miles/gallon
- Rail, long haul - 270 ton-miles/gallon
- Truck, short haul - 65 ton-miles/gallon
- Truck, long haul - 55 ton-miles/gallon
- Barge - 300 ton-miles/gallon

(2) Rail Carload Cost Scales, 1977, Interstate Commerce Commission, Bureau of Accounts, Statement No. 1C1-77, Washington, D.C, November 1979.

(3) Assessment of Environmental Impacts Associated with Railroad Abandonment Proposals, Office of Proceedings, Environmental Affairs Staff, Interstate Commerce Commission, October 1976.

These fuel consumption changes are described for each line, but the cost is not reflected directly in the benefit/cost analysis. Instead, this cost is part of the total alternative operating cost described earlier.

Environment - Finally, observations were made to determine significant effects on the environment. Truck traffic, of course, would increase with rail abandonment; but when compared with the average daily highway traffic, the quantity is normally insignificant. Emission levels would thus change only marginally. In recognition of this fact, the Interstate Commerce Commission, in considering abandonment cases, requires the calculation of air and noise level increases only if the motor carrier traffic would exceed 30 vehicles per day or 10 percent of a particular segment. Other effects would be associated with line dismantling operations, and it is doubtful that any long-term environmental effects would ensue.

Benefit/Cost Analytical Methods

The previously discussed factors were quantified where possible, and benefits and costs were then calculated. For analysis purposes, alternatives for preservation of rail service were developed and compared to a base case. The base case utilized was the null or "do nothing" alternative. It was assumed for System Diagram lines and the light density branch lines that the null alternative would result in the eventual abandonment of the rail line under scrutiny. Consideration of substitute service assistance was assessed and compared with other user alternatives for receipt or shipment of traffic. For cases in which the consequence of inaction is not abandonment in the near term, the base case was assumed to be the status quo.

Discount Rate - All costs and benefits were discounted at a rate of 4 percent over the project life. This discount rate was deemed representative of the opportunity cost of funds as opposed to current interest rates in which a large portion of the rate reflects inflation. For an economic analysis such as this Annual Update, only the opportunity cost component is considered to be relevant. By discounting in this manner, all benefits and costs are in terms of constant dollars.

Period - The life of alternative projects considered was established at 10 years. This term was deemed as a desirable goal from a State viewpoint in order to consider the project as a long term benefit. The State realizes that actual project life may, subject to negotiations, be of a different duration and project life adjustments will be made accordingly at such time as negotiations have sufficiently progressed to indicate a change in terms.

Project Costs - The total cost of each alternative was estimated as discussed earlier. This cost represents the cost to construct and/or implement the project as well as any economic disbenefits of the project. Where project investment, such as rehabilitation or new construction, may have value remaining at the end of the project life, this was taken into account by consideration of the discounted salvage value of the investment at the end of the analysis period as a project benefit instead of a reduction of project costs.

From the user's viewpoint, the continuation of rail service prevents cost changes; but from the railroad's viewpoint the continuation of rail service results in a cost to them of providing the service on the line. This becomes a disbenefit to the railroad, especially when the same traffic could be retained at another point at lesser cost. To estimate these costs, unit costs were developed for each line based on specific costs attributable to that line. Where traffic was anticipated to be retained at another point, the costs were reduced by the anticipated costs of providing service at the alternate point. For example, traffic delivered to an alternate team track still requires switching for set out and pick up, and car costs are still incurred (although they would be less if the alternate team track receives more frequent service than the branch line).

Project Benefits - Economic benefits arising from the continuation of rail service depend on the perspective taken in the analysis. The analysis from a state perspective requires the examination of total costs avoided or gains achieved in the process. This requires consideration of the impacts of the proposed action on all parties involved. The analysis is approached from a total cost standpoint as a measure of the economic resources devoted to the alternatives under consideration.

Transportation Benefits - Changes in transportation needs due to the elimination of rail service require a reallocation of resources from one mode to another. Also resources are used in the transfer of freight between modes. For example, commodities that previously moved totally on the rail line will now either be moved completely by another mode or will move to a team track at another rail station and be transloaded and then moved by rail or truck. These methods of transportation service were the most commonly anticipated results of rail abandonment found in preparation of this Update. Where users were not sure of their alternative course of action, the use of an alternate rail point and transfer from or to truck was the assumed course of action.

For analysis purposes, the net change of the two types of transportation costs was calculated, i.e., the difference in the two costs was considered the cost impact of the alternative project. In addition, to these cost differences, the procedure also addresses changes in the traffic level which are caused by a change in service. For example, additional transportation costs after an abandonment may cause a business to reduce its production level.

The changes in transportation costs which are prevented by an abandonment are termed "primary efficiency benefits" and are calculated according to the following formula(4):

$$(B1-B0) = Q0(C0-C1) + 0.5\,(P0-P1)(Q1-Q0) + (P1-C1)(Q1-Q0)$$

Where (B1-B0) = Change in benefits from Alternative 1 over Alternative 0.
Q0, Q1 = Quantity moved before and after alternative implementation.
C0, C1 = Gross cost per ton to move the traffic before and after alternative implementation.
P0, P1 = Price per ton to move the traffic before and after alternative implementation.

(4) Benefit-Cost Guidelines - Rail Branch Line Continuation Program, Federal Railroad Administration, Washington, D.C., February, 1980.

In the above formula, the first term is the cost change on existing traffic, the second term is the consumer surplus on new traffic, and the last term is the producer surplus on new traffic.

Relocation Benefits - Users dependent on rail service may be required to either relocate their entire business or some portion of it in order to avail themselves of rail service at an alternate point. These cases were ascertained in the user interviews, and the costs of such actions were considered a benefit of rail service retention. In the case of substitute service assistance, those costs considered as benefits of rail service continuation then became project costs. Another type of relocation benefit occurs if a business closes and the consumer has to travel to more distant points to make purchases. When this occurs, the expense of the additional travel is considered a benefit if the alternative prevents the expense from occurring.

Employment Benefits - Unemployment resulting from a business closure is effective only until such time as the former employee(s) has obtained other employment. It is also assumed that the former employee is rehired within the State (unless information is obtained to the contrary). The measure of the benefit then becomes the lost wages for the unemployment period. Unemployment compensation is considered a transfer cost from the State perspective and as such is not a benefit or disbenefit. From a local viewpoint however, the employment loss is reduced by unemployment compensation as the compensation results in a gain or reduction of loss in the local area.

The benefits and costs discussed above were analyzed in terms of:

- Benefit/Cost Ratio - Total project benefits divided by total costs (including any project disbenefits);
- Net Present Value - Total project benefits less total costs; and
- Distribution of Benefits - The effects that a project has on the various parties involved.

The State of Montana considers each of these analyses to be equally important because they distinguish between the total effects of a project and the beneficiaries of the project.

Benefit/Cost Ratio - This ratio (B/C) is calculated by dividing the present value of the benefits by the present value of the costs of an alternative. Ratios that exceed 1.0 indicate that, from a public policy viewpoint, expenditure of public funds is justified since benefits exceed costs. Furthermore the comparison of the magnitude and the difference of ratios for mutually exclusive projects is one way to distinguish between alternatives.

The benefits utilized for this ratio are in terms of real economic changes in the use of resources and specifically exclude transfer payments such as taxes and unemployment compensation. Benefits of a project which can be included follow.

- User incremental transportation and handling costs;
- User net relocation cost;
- User net equipment costs;
- Railroad net costs;
- Personal income loss;
- Salvage of rail project materials at end of analysis period, e.g. rehabilitation; and
- Highway/bridge maintenance costs.

Of course, not all of the above benefit categories would necessarily be included in every particular case because the benefits might be zero or at least very small in relation to the total benefit.

The costs of the ratio are considered to be the total funds (regardless of federal/non-federal share) required to implement the project plus any project disbenefits as discussed earlier. The types of costs are described earlier and include for Montana's purposes:

- Rehabilitation;
- New Construction;
- Substitute Service; and
- Acquisition.

Net Present Value - Whereas the previous calculation is a relative measure of the discounted project benefits and costs, the net present value (NPV) is a measure of the absolute difference between benefits and costs. Thus if the net present value is positive, the project should be accepted and if it is negative, the project should be rejected (in a strict economic sense). For competing mutually exclusive projects, the project with the higher NPV should be chosen (again, in a strict economic sense).

Under ordinary circumstances both the benefit/cost ratio method and the net present value method will lead to the same conclusions regarding project selection. However, when the cash flow of one project increases while the cash flow of a competing project decreases, then the two methods may yield different rankings. The same conflict can occur if the cost of one project is significantly different from the other. In such cases the generally accepted procedure is to use the net present value method.

Distribution of Benefits - In order to provide a clearer picture of the alternative actions, the distribution of benefits or disbenefits is shown for each analysis. This permits an overview of the impacts on each group involved in the potential action. It also provides another means of evaluating the action without strict reliance on the benefit/cost analysis and as such may provide insights into alternative actions where one party may be unduly impacted as compared to others. In this manner, for example, shipper benefits and disbenefits can be distinguished from railroad benefits and disbenefits.

Evaluation of Projects

Each alternative is evaluated in terms of the benefit/cost ratio, the net present value, and the distribution of benefits. In general, ratios

over 1.0 or NPV's greater than zero are indicative of "good" projects from a strict economic viewpoint, but the State places higher emphasis on those projects (which might have lower B/C ratios or net present values) which benefit its citizens instead of other parties. It is important to note that from both a state and national viewpoint, potential projects with B/C ratios less than 1.0 are not automatically excluded from project funding. A dependence upon these values can sometimes overlook other important criteria. For example, a ratio based on historic traffic levels which have been distorted due to car availability, weather, and unusually low or high demand could lead to inappropriate conclusions. Environmental and energy factors are generally not included in the benefit/cost analysis. Likewise, the potential for area growth and the level of local interest in service preservation are issues which should be addressed. These other considerations are also evaluated qualitatively to the extent possible for each line.

Table 4-1 summarizes the project selection procedure followed for this Update. As shown, the procedure first identifies the preferred project for each line considered separately. Then the procedure ranks the preferred projects for all lines in order to obtain a project priority ranking. In both cases both quantitative and qualitative aspects of the lines are considered.

Table 4-1

RAIL ASSISTANCE PROJECT

SELECTION AND RANKING CRITERIA

A. Selection of Preferred Project for a Single Line

1. Calculate present value of project benefits (PVB) and costs (PVC).
2. Calculate net present value (NPV) of benefits and costs. NPV = PVB-PVC.
3. Calculate benefit/cost ratio (B/C). B/C = PVB/PVC.
4. Divide potential projects into those which would retain or improve rail service and those which would minimize abandonment impacts.
5. For each group of projects, select the project with the highest NPV. This project for each group is the preferred project.
6. Adjust as needed for non-quantifiable or unusual circumstances.

B. Ranking of Preferred Projects

1. Place all preferred projects with B/C >1 in Serious Consideration category. Rank projects within category in descending order of NPV.
2. Place all preferred projects with B/C <1 in Potential Consideration category if there would be little rail user impact of abandonment. Rank projects within category in descending order of NPV.
3. Place all other lines in Little or No Consideration category. The abandonment of these lines would have little direct impact on the State.
4. Adjust as needed for non-quantifiable or unusual circumstances.

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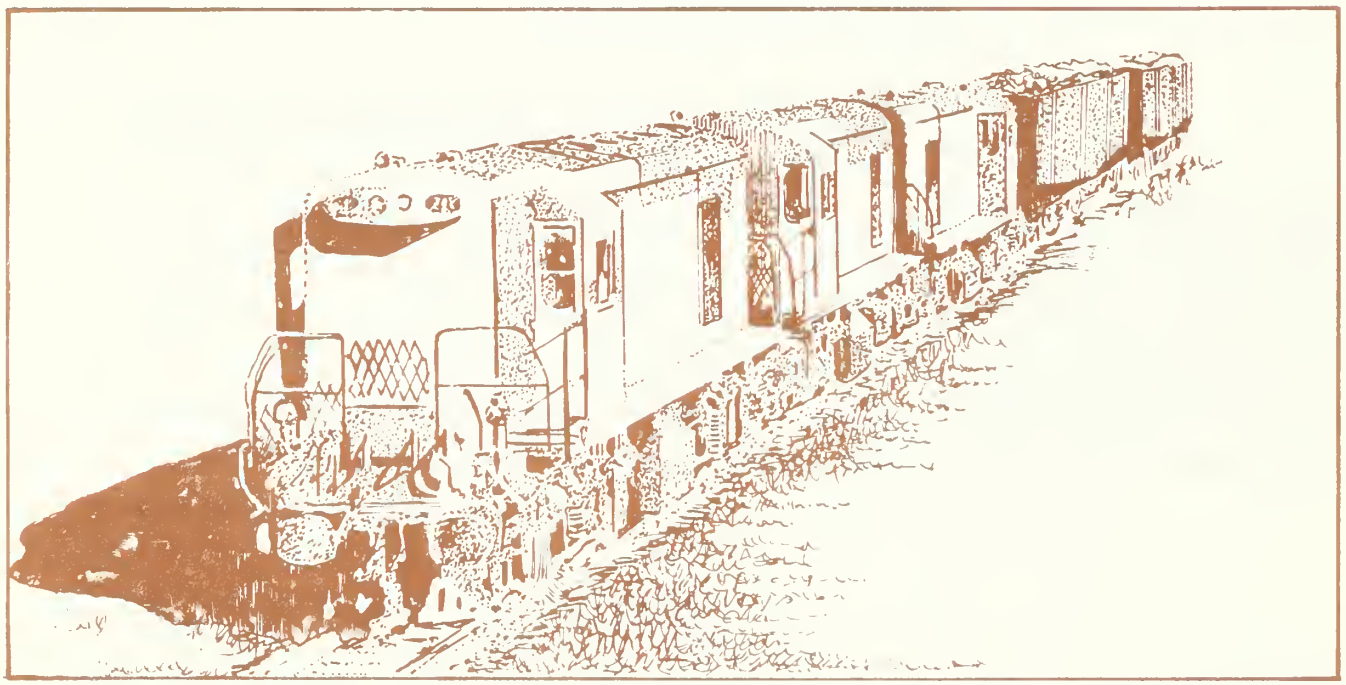
LINE ANALYSIS



CHAPTER 5

CHAPTER 5
LINE ANALYSIS

This chapter represents the major reason for the conduct of the 1982 Annual Update of the Montana Rail Plan. Contained herein are the detailed analyses of the twenty-three lines listed earlier in Chapter 3 and illustrated on Figure 3-1. These rail lines have not been previously evaluated for project funding purposes and are analyzed according to the procedures described in Chapter 4. The ranking of these lines for project funding purposes is the subject of Chapter 6.

The first section of this chapter describes previously studied lines and reports any changes since the time of the original analysis.

PREVIOUSLY ANALYZED LINES

Choteau to Fairfield - BN, 18.3 Miles

This line was first analyzed in 1979 as a portion of the Great Falls to Agawan line which was a Category III Milwaukee Road line. The Choteau-Fairfield section was subsequently purchased by the BN and is now classified a light density line in Category V. The line is part of a rehabilitation project which is discussed in the Appendix. 1980 traffic consisted of 676 carloads of outbound wheat and barley and 62 carloads of inbound fertilizer.

Choteau to Pendroy - BN, 22.7 Miles

Since the 1980 Supplement to the Montana Rail Plan, this line has been changed from a Category V to a Category I line indicating the carrier may seek to abandon the line within the next three years. There were 102 carloads originating or terminating at Pendroy in 1980 compared with 143 in 1979.

Glasgow to Glasgow AFB - BN, 18.8 Miles

The line was classified a Category I line when it was first analyzed in 1979, and the 1980 Supplement to the Montana Rail Plan indicated there was no change at that time. Since the 1980 Supplement, this line has been formally abandoned.

Great Falls to Loy Spur - BN, 12.8 Miles

This branch was originally analyzed in 1979 as part of the Milwaukee Road's Category I line from Great Falls to Lewistown. At the time of the 1980 Supplement, this branch was operated by the BN under an interim agreement, but it is now part of the BN system. The line is used to carry ordnance and general commodities to Malmstrom AFB.

Haugan to Idaho State Line - BN, 18.9 Miles

The line was first analyzed in 1979 and at that time it was classed as Category III which means that an abandonment decision was pending before the ICC. An abandonment was granted and was being appealed at the time of the 1980 Supplement. Abandonment has now been granted.

Hesper to Rapelje - BN, 38.2 Miles

This line was classified as Category V when the line was first analyzed in 1980. The line is now designated Category I indicating the carrier may seek to abaondon the line within the next three years. There were 64 carloads of wheat shipped from the three stations on the line in 1980 - down significantly from the 274 carloads shipped in 1970. The three operating elevators have basically converted to trucking.

Lewistown to Geraldine - BN, 74.5 Miles

This line was analyzed first in 1979 as part of the Great Falls to Lewistown line. At that time the line was part of the Milwaukee Road system and was classified as a Category I line. The Lewistown to Geraldine

line is now part of the BN system and is classified in Category V. 1980 traffic originating or terminating on the line included 545 carloads at Denton and 516 carloads at Geraldine. The majority of the traffic is farm products.

Lewistown to Heath - BN, 10.5 Miles

The line was first analyzed in 1979 and at the time was part of the Milwaukee Road system classified as a Category I line. In August 1980 the line was transferred to the BN and is now classified in Category V. In 1980 there were 35 carloads, mainly gypsum board, shipped by the only shipper on the line in Heath. That is down signficantly from the 122 carloads shipped in 1978 and is the result of current poor market conditions.

Lewistown to Moore - BN, 17.6 Miles

When this line was first studied in 1979 as part of the Lewistown to Harlowton line, it was part of the Milwaukee Road system and was classified as a Category I line. In August 1980 the Lewistown to Moore line was transferred to the BN Railroad and is now classified in Category V. The remainder of the Lewistown to Harlowton line has been abandoned. There were 358 originating or terminating carloads at the Moore station in 1980.

Livingston to Brisbin - BN, 10.3 Miles

This line was first studied in 1980 and at that time was classified a Category V line. The line has since been formally abandoned.

Missoula to Darby - BN, 65.9 Miles

This line was designated a Category V line when it was first analyzed in 1980, and the designation remains unchanged. Rail traffic on the line has decreased from 723 carloads in 1979 to 559 carloads in 1980. The decrease has been due mainly to the recent poor market for lumber and other building products.

Moccasin to Spring Creek - BN, 21.5 Miles

This was first analyzed in 1979 and at that time it was designated a Category I line, indicating potential abandonment. Since this line provides access to Milwaukee lines purchased by the BN in 1980, the classification was changed to Category V as reported in the 1980 Rail Plan Supplement. There have been no changes since the 1980 Supplement.

North Dakota State Line to Carlyle - BN, 2.9 Miles

This line was classified as a Category V line in May 1980 after having been previously designated a Category I line. The BN subsequently reversed itself, and the line has now been abandoned.

Power to Eastham Junction - BN, 21.2 Miles

This line was first analyzed in 1980 as a Category V line. The line is part of the rehabilitation project discussed in the Appendix. The other portion of this project runs from Choteau to Fairfield as discussed earlier. The line serves as the only access for lines in the Choteau, Fairfield and Pendroy areas to the BN main line at Power since abandonment of Milwaukee lines in 1980.

Saco to Hogeland - BN, 79.3 Miles

When this line was first analyzed in 1979, it was classified Category I, which indicates potential abandonment within 3 years. The 1980 Supplement to the Montana Rail Plan reported the line had been changed to Category II, which indicates that abandonment is being studied but that no decision had been made. The line is currently classified as Category I again. Shipper surveys indicate traffic has been decreasing in recent years. Between 1979 and 1980 the traffic decreased from 259 to 176 carloads.

Sappington to Harrison - BN, 10.0 Miles

This line was first analyzed in 1980 as a Category V line. The current classification is Category I indicating potential abandonment within three years. Rail traffic was only 16 carloads in 1979, but it increased to 31 carloads in 1980. The highest level in recent years was 90 carloads in 1976.

Silesia to Red Lodge - BN, 34.5 Miles

When this line was first analyzed in 1979 it was classified Category III. An abandonment application was disapproved in June 1979 because of the possibility of coal mine development in the area. This development did not occur, and a year later the BN filed for abandonment. The line is now abandoned.

Whitehall to Alder - BN, 45.6 Miles

This line was classified as Category V when the line was first analyzed in 1980. In 1981 the BN placed the line in Category II which indicates that the line was being studied for possible abandonment. In June, 1982 the BN re-designated the line in Category V which means that the railroad does not intend to abandon. There were 1,471 carloads shipped on the line in 1980 compared with 756 carloads in 1979. Under normal circumstances, this line should be re-analyzed. However, this action is unnecessary since the railroad has discontinued any abandonment plans. The estimated cost and revenue associated with this line is discussed in more detail later in the Three Forks to Whitehall line analysis.

Rpt72/L

BAINVILLE TO OPHEIM
Burlington Northern Railroad

This branch line extends 146.6 miles from a BN main line at Bainville through four counties in northeastern Montana. The line serves approximately 16 stations with the largest in terms of carloads being Plentywood and Scobey. The principal originating traffic is farm products, mainly wheat, and the principal terminating traffic is chemicals, mainly fertilizers.

The status and issues concerning this line are follows:

- Light density line which has not been identified for possible abandonment.
- Very long branch line (longest line analyzed in this report); volume of traffic in comparison to length of line is low.
- Rail traffic significantly less west of Scobey.
- Major segments in poor condition due to lightweight rail and poor ties.
- Beginning to be significant main line competition from subterminals and other elevators, particularly for branch line stations between Redstone and Opheim; segment toward Bainville has less main line competition at this time.
- Some elevators working together to get 26-car multiple origin rates.
- Truck competition exists but distance to market and rail rates tend to keep significant volumes on rail; durum wheat tends to move by truck or single rail car.

Rail Use

Table 5-1.1 summarizes 1980 railroad use statistics. A total of 2,889 carloads were transported with over 96 percent being outbound grain shipments, and the remainder inbound fertilizer and farm machinery. Scobey was the busiest of the 22 stations followed by Reserve, Antelope and Plentywood. The shippers/receivers using the stations are listed in Table 5-1.2 along with their primary commodities shipped.

Rail Service

The BN serves this line twice a week; but due to the length of the line and the speed limits, approximately 2 days are required for each round trip. Speed limits vary between 25 and 35 mph.

The BN reported that it received revenues with approximately $5.4 million in 1980. With these revenues an operating deficit of $1.3 million appears to have occurred. However, had a normal return of revenue per car occurred during 1980 total revenues of $7.7 million would have occurred resulting in an estimated net profit of approximately $1,007,668 as shown in Table 5-1.3. The cost estimates include normalized maintenance and a return on value. The actual maintenance of way should be considerably less since the line has not had major cyclical maintenance in several years. Table 5-1.4 provides an illustration of costs and revenues with Great Falls, Montana assumed as the termation point for grain movements west.

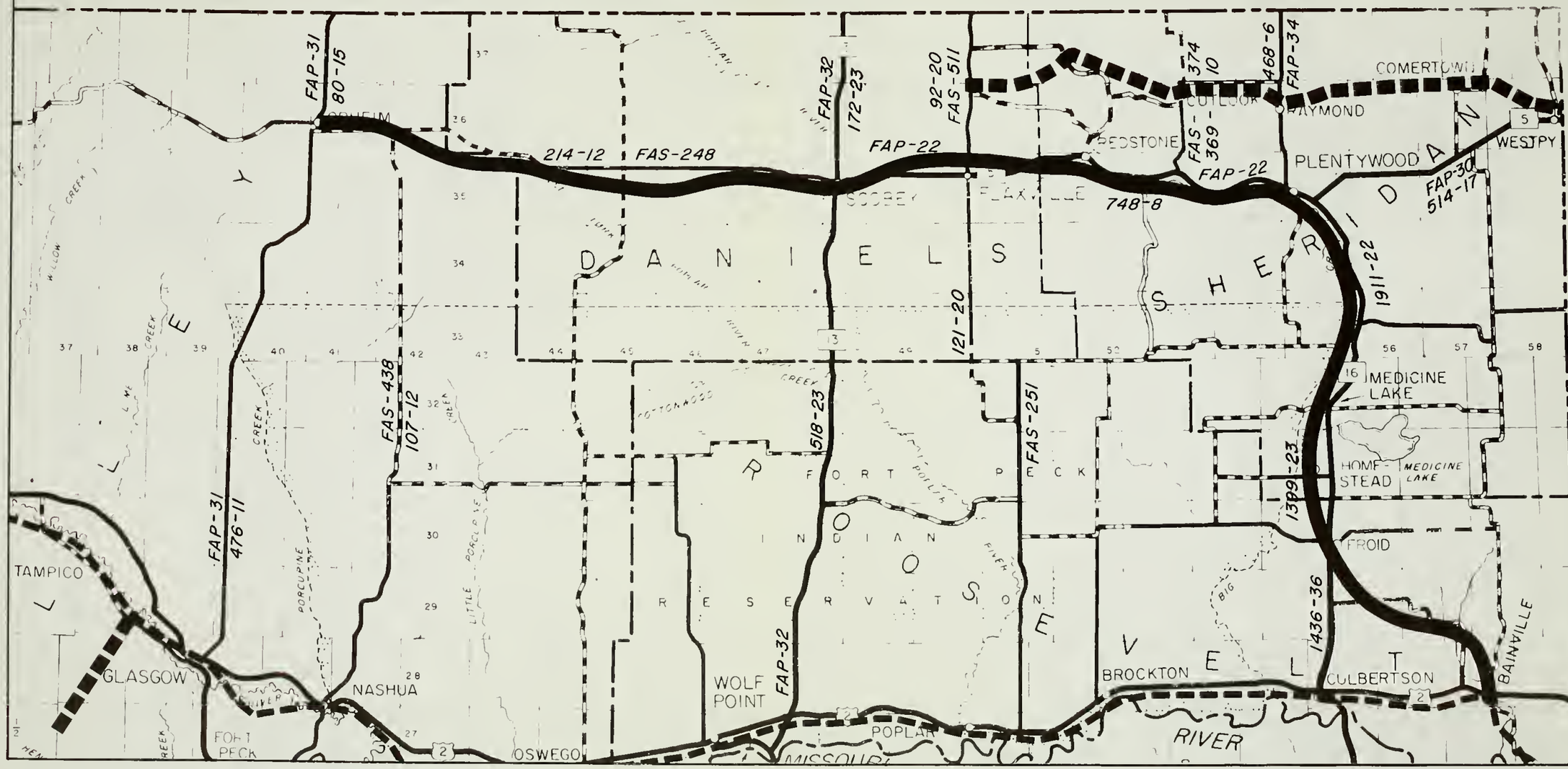
Highways

Figure 5-1 shows locations, federal aid designations, traffic volumes and surface types of principal highways serving the area. Traffic volumes are generally low with the highest volumes, approximately 1,400 vehicles per day, on the primary highway between Plentywood and Culbertson. The percent truck traffic is high, up to 25 percent on several highway sections. Table 5-1.5 list highway distances to alternative rail stations.

Rail Inventory and Condition

An examination of the traffic volumes on this line indicates that the Bainville/Scobey segment generates over 80 percent of the traffic. Therefore, it is useful for analytical purposes to divide this line into 2 segments. The entire line was inspected from a hy-rail vehicle.

Bainville to Scobey - The first 100 miles of this branch line are composed of nearly equal amounts of lightweight and medium weight rail as indicated in Table 5-1.6. The rail as well as the ties are in generally



LEGEND

- SUBJECT LINE
- OTHER LINES IN THIS REPORT
- LINES PREVIOUSLY ANALYZED
- ALL OTHER LINES
- 325-12 1981 ADT - % TRUCK

RAILROAD : BURLINGTON NORTHERN
LENGTH : 146.6 MILES
COUNTIES : ROOSEVELT, SHERIDAN, DANIELS, VALLEY
STATUS : LIGHT DENSITY LINE

BAINVILLE - OPHEIM

FIGURE 5-1

TABLE 5-1.1
RAILROAD USE STATISTICS - 1980
Bainville to Opheim

STATION	CARLOADS Number	CARLOADS Percent	Tons Number	Tons Percent	COMMODITY
			Originating		
Opheim	151	5.2	14,949	5.3	Farm Products
Glentana	51	1.8	5,049	1.8	Farm Products
Richland	107	3.7	10,593	3.8	Farm Products
Peerless	121	4.2	12,000	4.3	Farm Products
Four Buttes	130	4.5	12,870	4.6	Farm Products
Scobey	673	23.3	66,627	23.7	Farm Products
Madoc	65	2.3	6,435	2.3	Farm Products
Flaxville	138	4.8	13,662	4.9	Farm Products
Navajo	10	0.4	990	0.4	Farm Products
Redstone	118	4.1	11,682	4.2	Farm Products
Plentywood	303	10.5	29,997	10.7	Farm Products
Antelope	266	9.2	26,334	9.4	Farm Products
Reserve	318	11.0	31,461	11.2	Farm Products
Medicine Lake	119	4.1	11,781	4.2	Farm Products
Homestead	86	3.0	8,514	3.0	Farm Products
Froid	117	4.1	11,583	4.1	Farm Products
			Terminating		
Richland	6	0.2	600	0.2	Chemicals
Scobey	21	0.7	420	0.2	Machinery
	10	0.4	800	0.3	Chemicals
Redstone	12	0.4	240	0.1	Machinery
Plentywood	20	0.7	400	0.1	Machinery
	12	0.4	1,000	0.4	Chemicals
Reserve	27	0.9	2,700	1.0	Chemicals
Froid	8	0.3	800	0.3	Chemicals
Total Traffic	2,889	100.0	281,487	100.0	

1980 Statistical Summary

Length: 146.6 miles
Million Gross Ton-Miles Per Mile: 0.291
Carloads Per Week: 55.6
Carloads Per Mile: 19.7
Revenue: $5,377,000

SOURCE: Burlington Northern Railroad
Montana Department of Commerce

TABLE 5-1.2
RAILROAD USERS
Bainville to Opheim

NAME	STATION	SIDING(1)	COMMODITY
Farmers Union GTA	Opheim	P	Farm Products
Glentana Elevator Co.	Glentana	P	Farm Products
Farmers Union Elevator	Richland	P	Farm Products
Richland Farm Supply	Richland	P	Chemicals
Farmers Union GTA	Peerless	P	Farm Products
Four Buttes Farmers Elevator	Four Buttes	P	Farm Products
Farmers Elevator of Scobey	Scobey	P	Farm Products
Nash Bros. Inc. Feed & Grain	Scobey	P	Farm Products
Rasmus Nelson, Inc.	Scobey	P	Machinery
Identity Preserve	Scobey	P	Farm Products
Cenex Soil Service	Scobey	P	Chemicals
Noland Implement	Scobey	P	Machinery
Raymond Trower	Madoc	P	Farm Products
Farmers Union GTA	Flaxville	P	Farm Products
Linden Wheat Ranch Inc.	Navajo	P	Farm Products
Redstone Grain Co.	Redstone	P	Farm Products
Nash Bros. Inc.	Redstone	P	Machinery
Farmers Union Trading Co.	Plentywood	P	Farm Products, Food
Peavey	Plentywood	P	Farm Products
J & L Equipment	Plentywood	P	Machinery
Farmers Union Oil	Plentywood	P	Chemicals
Western Implement	Plentywood	P	Machinery
Plentywood Power Equipment Co.	Plentywood	P	Machinery
Antelope Grain Co.	Antelope	P	Farm Products
Farmers Elevator Co.	Reserve	P	Farm Products
Con Agra	Reserve	P	Chemicals
Sheridan Grain Co.	Reserve	P	Farm Products
GTA Elevator	Medicine Lake	P	Farm Products, Food
Farmers Elevator	Homestead	P	Farm Products
Farmers Elevator Co.	Froid	P	Farm Products
GTA	Froid	P	Farm Products
Farmers Union Oil	Froid	P	Chemicals

(1) P - Private or leased siding on premises
T - Team track

SOURCE: Burlington Northern Railroad
Montana Department of Commerce

TABLE 5-1.3
ESTIMATED REVENUES AND COSTS
Bainville to Opheim

REVENUES ATTRIBUTABLE		YEAR 1980
1.	Freight Originated and/or Terminated on Branch	$7,679,843(1)
AVOIDABLE COSTS		
2.	On-Branch Costs (Lines 2a through 2c)	$2,005,341
	a. Maintenance of Way and Structures (Normalized)	1,081,908
	b. Transportation	667,429
	c. Freight Car Costs	256,004
3.	Off-Branch Costs	4,240,019
4.	Total Avoidable Costs (Line 2 plus Line 3)	$6,245,360
5.	Avoidable Loss from Operations (Line 1 minus Line 4)	($1,434,483)(2)
6.	Net Liquidation (Line 6a plus Line 6b)	$3,527,400
	a. Materials	2,816,400
	b. Land	711,000
7.	Rate of Return	12.1%
8.	Opportunity Cost Foregone (Line 6 times Line 7)	426,815
9.	Total Avoidable Loss (Line 5 plus Line 8)	($1,007,668)

(1) The BN reported that it received revenues of $5,377,000 in 1980. Additional investigation of 1980 statistics indicates that the revenues received per car were non-typical. Therefore, the reported $5.3 million in revenues has been adjusted to a revenue total of $7,679,843 for illustration purposes. The adjustment is based on reported revenues during 1981 of 1,475 total cars producing a total revenue of $4,500,000 in 1981. The 1981 revenue base has been in turn adjusted for inflation to a 1980 level using the May 1982 Survey of Current Business average price indexes for 1980 and 1981.

(2) Parenthesis indicates gain.

SOURCE: Wilbur Smith and Associates

TABLE 5-1.4
ESTIMATED REVENUES AND COSTS
Bainville to Opheim
(Great Falls Destination Assumption)(1)

		YEAR 1980
REVENUES ATTRIBUTABLE		
1.	Freight Originated and/or Terminated on Branch	$5,377,000
AVOIDABLE COSTS		
2.	On-Branch Costs (Lines 2a through 2c)	$2,005,341
	a. Maintenance of Way and Structures (Normalized)	1,081,908
	b. Transportation	667,429
	c. Freight Car Costs	256,004
3.	Off-Branch Costs	2,133,595
4.	Total Avoidable Costs (Line 2 plus Line 3)	$4,138,936
5.	Avoidable Loss from Operations (Line 1 minus Line 4)	($1,238,064)(2)
6.	Net Liquidation (Line 6a plus Line 6b)	$3,527,400
	a. Materials	2,816,400
	b. Land	711,000
7.	Rate of Return	12.1%
8.	Opportunity Cost Foregone (Line 6 times Line 7)	426,815
9.	Total Avoidable Loss (Line 5 plus Line 8)	$ (811,249)(2)

(1) The above table includes revenues as reported by the Burlington Northern Railroad and with off-branch costs calculated with the assumption that all grain movements to the west terminated at Great Falls, Montana. This table is provided for illustration purposes only. It is believed that Table 5-1.3 more accurately depicts true conditions on the Bainville to Opheim line.

(2) Parenthesis indicates gain.

SOURCE: Wilbur Smith and Associates

TABLE 5-1.5
DISTANCE TO SELECTED RAILROAD STATIONS
Bainville to Opheim

TOWN	ALTERNATIVE RAIL STATION	RAILROAD	ROAD DISTANCE
Opheim	Glasgow	BN	51
Glentana	Glasgow	BN	58
Richland	Glasgow	BN	67
Peerless	Glasgow	BN	79
	Wolf Point	BN	75
Four Buttes	Wolf Point	BN	65
Scobey	Wolf Point	BN	55
Madoc	Wolf Point	BN	61
Flaxville	Wolf Point	BN	66
Redstone	Wolf Point	BN	78
	Culbertson	BN	65
Plentywood	Culbertson	BN	47
Antelope	Culbertson	BN	41
Reserve	Culbertson	BN	33
Froid	Culbertson	BN	14

SOURCE: Wilbur Smith and Associates
Morrison-Maierle, Inc.

good condition even with the light rail. There are an insufficient number of rail anchors which has allowed the rail to run in a few locations and to damage the joint ties. Finally some areas have poor subgrade.

Scobey to Opheim - The inspection report for the last 47 miles is presented in Table 5-1.7. Most of this segment also has lightweight rail, but it also has some heavier rail than the segment discussed above. The light rail exhibits some curve and head wear as well as bent rail. The ties are generally poor in the light rail segments and in good condition in the heavier rail segments. The number of rail anchors in the lighter weight segments is inadequate and has allowed the rail to run at a few locations. Some segments have narrow roadbed, poor subgrade and washing.

Rehabilitation Costs

The costs to rehabilitate these two segments are presented in Tables 5-1.8 and 5-1.9.

TABLE 5-1.6
LINE FACILITIES CONDITION
Bainville to Scobey

Mileposts -	0.0 to 100.0
Rail -	45.3 miles of 77.5 lb. rail and 54.7 miles of 90 lb. rail; generally in good condition, a few bent rails where track needs surfacing at scattered poor subgrade; short segment east of Medicine Lake with numerous engine burns; joints 24-inch 4-hole.
Ties -	Treated mixed hardwoods and softwoods generally in good condition, scattered locations between MP 12 and MP 19 where joint ties have been damaged by rail running.
Tie Plates - and Rail Anchors	Fully plated with single shoulder tie plates; varying numbers of anchors averaging approximately 40% of those required; due to insufficient number of anchors, rail is running at scattered locations and is damaging joint ties.
Ballast -	Gravel and crushed rock; scattered locations where additional ballast has been unloaded for needed surfacing; between Bainville and MP 30 some additional ballast needed for light surface (skin lift) and to fill empty cribs; however generally good ballast section east of Antelope (MP 45).
Bridges -	Sixty-two (62) bridges totalling approximately 7,300 L.F.; those bridges observed were generally in good condition; one end of timber bridge at MP 13.9 had been charred by fire, jack stringers have been installed.
Road - Crossings	Forty-four (44), ten (10) paved, thirty-four (34) unpaved.
Roadbed/ Ditching -	Roadbed low at several locations, scattered locations of poor subgrade; approximately 0.2 miles of track in the vicinity of MP 39 low through swampy area; very high water near MP 40; no side drainage blocked however.
Vegetation -	Some scattered light grass in track near Plentywood, otherwise track generally clean; low grass along entire right-of-way.

Timetable Speed - 35 mph between MP 0.0 and 54.7
25 mph between MP 54.7 and 100.0

Weight Restrictions-263,000 lbs. gross weight.

Net Liquidation- $2,177,800 (materials), $485,000 (land).

SOURCES: Wilbur Smith and Associates
Burlington Northern Railroad
Railway Line Clearances, Vol. 191, 1981

TABLE 5-1.7
LINE FACILITIES CONDITION
Scobey to Opheim

Mileposts -	100.0 to 148.0
Rail -	18.8 miles of 75 lb. rail, 19.5 miles of 77.5 lb. rail, 0.4 miles of 90 lb. rail, 5.2 miles of 100 lb., 3.0 miles of 110 lb. rail, 1.1 miles of 112 lb. rail; some of 77.5 lb. curve worn, heavier rail generally with good surface and line, however, with head wear; 24-inch 4-hole joints.
Ties -	Treated mixed hardwoods and softwoods, generally in poor condition in lighter weight rail segments and in good condition in heavier rail segments; scattered locations of poor joint ties in 77.5 lb. rail segment.
Tie Plates and Rail Anchors -	Fully plated, single shoulder tie plates with double shoulder tie plates with 110 lb. and 112 lb. rail; varying numbers of rail anchors throughout line, generally 100% of those required with 110 lb. and 112 lb. rail and 30% of those required with lighter weight rail; some evidence of rail running at a few locations.
Ballast -	Mostly river gravel; segments scattered between MP 112 and 125 where dirt blowing from adjacent fields; other locations where ballast needed due to shallow washouts.
Bridges -	Thirty-three (33) bridges totalling 2,467 L.F., those bridges observed were generally in good condition.
Road Crossings -	Twenty-two (22), three (3) paved, nineteen (19) unpaved.
Roadbed/ Ditching -	Scattered locations of poor subgrade and some narrow roadbed; short washout at end of bridge near MP 102.1; side drainage generally adequate, water washing onto track out of adjacent fields between Glentana and Opheim.
Vegetation -	Track generally clean, a few locations where vines or weeds in track; growth on right-of-way controlled.

Timetable Speed - 25 mph

Weight Restrictions - 263,000 lbs. gross weight.

Net Liquidation - $638,600 (materials), $226,000 (land).

SOURCES: Wilbur Smith and Associates
Burlington Northern Railroad
Railway Line Clearances, Vol. 191, 1981

TABLE 5-1.8
REHABILITATION COST ESTIMATE
Bainville to Scobey

COST ITEM	COST
Rail, 100 lb. Relay (176 tons/mile x 45.3 miles) @ $275	$2,192,520
Joints, 100 lb. S.H. (270/mile x 45.3 miles) @ $10	122,310
Bolts and Nut Locks, New (1,080/mile x 45.3 miles) @ $2.00	97,848
Tie Plates, S.H. (6,000/mile x 45.3 miles) @ $2.75	747,450
Spikes, New (12,000/mile x 45.3 miles) @ $0.36	195,696
Rail Anchors, 100 lb., New (3,240/mile x 45.3 miles) @ $1.15	168,788
Crossties, New (700/mile x 7.0 miles) @ $17	83,300
Spikes, New (2,800/mile x 7.0 miles) @ $0.36	7,056
Ballast (700 tons/mile x 45.3 miles) @ $3.75	118,913
Ballast (500 tons/mile x 54.7 miles) @ $3.75	102,563
Rail Anchors, 90 lb., New (2,000/mile x 54.7 miles) @ $1.15	125,810
Unload Material, 45.3 miles @ $2,800	126,840
Unload Material, 54.7 miles @ $1,500	82,050
Lay Rail, 45.3 miles @ $15,000	679,500
Timber and Surface, 7 miles @ $7,000	49,000
Surface and Line, 45.3 miles @ $2,500	113,250
Smooth and Line, 54.7 miles @ $1,250	68,375
Work Crossings, 44 @ $2,000	88,000
Subtotal	$5,169,269
Less Value of Material Released	- 496,256
Total Rehabilitation Cost	$4,673,013

SOURCE: Wilbur Smith and Associates

TABLE 5-1.9
REHABILITATION COST ESTIMATE
Scobey to Opheim

COST ITEM	COST
Ditching and Roadbed Repair, 5 miles @ $1,000	$ 5,000
Rail, 100 lb. Relay (176 tons/mile x 38.7 miles) @ $275	1,873,080
Joints, 100 lb. S.H. (270/mile x 38.7 miles) @ $10	104,490
Bolts and Nut Locks, New (1,080/mile x 38.7 miles) @ $2.00	83,592
Tie Plates, S.H. (6,000/mile x 38.7 miles) @ $2.75	638,550
Spikes, New (12,000/mile x 38.7 miles) @ $0.36	167,184
Rail Anchors, New (3,240/mile x 38.7 miles) @ $1.15	144,196
Crossties, New (700/mile x 38.7 miles) @ $17.00	460,530
Ballast (1,000 tons/mile x 38.7 miles) @ $3.75	145,125
Turnouts, #9, 100 lb., S.H., 14 @ $10,000	140,000
Unload Material, 38.7 miles @ $2,800	108,360
Lay Rail, 38.7 miles @ $15,000	580,500
Timber and Surface, 38.7 miles @ $7,000	270,900
Smooth and Line, 9.3 miles @ $1,250	11,625
Install Turnouts, 9 @ $3,000	27,000
Work Road Crossings, 22 @ $2,000	44,000
Subtotal	$4,804,132
Less Value of Materials Released	- 135,411
Total Rehabilitation Cost	$4,668,721

SOURCE: Wilbur Smith and Associates

Bainville to Scobey - The 100-mile Scobey/Opheim segment is in need of approximately $4.7 million in order to stabilize the line condition and to allow fully loaded covered hoppers for the long term. Even though such equipment is allowed now, the lightweight rail will eventually reach a point where a lower weight limit will have to be imposed. Nearly all of the cost is for the 39-mile segment with lightweight rail.

Scobey to Opheim - The last segment is only 46 miles long, but it needs approximately the same amount of work for the reasons discussed above. This segment also requires approximately $4.7 million in rehabilitation, but major work is needed over nearly all of the line instead of a portion.

Effects of Abandonment

Railroad - It appears that the line, given a normal revenue return per car, is profitable to the railroad. However, given revenues of the magnitude reported in 1980 (i.e., $5.4 million) the line would be unprofitable. If the line were abandoned, the railroad would save at least the on-branch costs of $2.4 million per year with possible loss of revenue if traffic diversions to trucks occur.

Rail Users - There is considerable activity from rail users on this line, and an abandonment will cause a considerable impact. Shippers would have to convert to truck for at least some of the grain and may also use other rail stations for part. Some farmers which sell to these elevators may divert to the main line, and the local elevators may therefore lose business. The estimated net impact of abandonment is $4.8 million.

Highways/Bridges - Currently identified rehabilitation and reconstruction needs for area highways are listed in Table 5-1.10. Several segments are in need of major work and some of these needs could increase with the addition of truck trips created by an abandonment. Roads which will experience increases in average daily truck trips include:

- FAP 31 - 2 farm trucks, 2 grain trucks
- FAP 32 - 6 farm trucks, 8 grain trucks
- FAP 22 - 3 farm trucks, 10 grain trucks

Of these facilities, Federal Aid Primary 32 (State Road 13) is expected to have the largest increase. However, as shown earlier in the figure, the 1981 average daily traffic on this highway was 518 vehicles per day of which 23% were trucks. After an abandonment, this road would have an ADT of 532 vehicles of which 25% would be trucks. Therefore, even this increase is relatively low.(1)

TABLE 5-1.10
AREA HIGHWAY AND BRIDGE NEEDS
Bainville to Opheim

ROUTE	FROM	TO	LENGTH	ROADWAY NEEDS ($1000)	BRIDGE NEEDS ($1000)	AVERAGE COST/MILE ($1000)
FAP-31	Opheim	Glasgow	50.0	$ 22	$ 394	$ 8.3
FAS-248	Opheim	Scobey	37.6	1,323	1,333	70
FAP-32	Scobey	Wolf Point	50.8	5,366	1,507	135
FAP-22	Scobey	Plentywood	41.5	5,064	711	139
FAP-22	Plentywood	Culbertson	47.0	1,423	679	45

SOURCE: Montana Department of Highways
Morrison-Maierle, Inc.

(1) 1981 truck percentages may be temporary given northern border pipeline construction and area seismic testing.

Energy - This long branch line carries a substantial amount of rail traffic, and an abandonment would generate a combination of long haul trucking to the final destinations and short haul trucking to main line locations. Since long haul trucking is less efficient than long haul rail operations, an increase in fuel consumption would be expected after an abandonment. Nearly 1.4 million more gallons will be consumed annually without this line.

Alternatives Evaluated

As a light density line, the Bainville to Opheim line is eligible for rehabilitation assistance in order to improve the efficiency of the current operation and therefore to enhance the opportunity for continued service. Tables 5-1.11 and 5-1.12 summarize the analysis of the potential rehabilitation projects.

TABLE 5-1.11
DISTRIBUTION OF BENEFITS
OF ALTERNATIVE PROJECTS
Bainville to Opheim

BENEFIT TYPE	DESCRIPTION	ESTIMATED BENEFIT
	Rehabilitation, Bainville to Scobey Alternative	
Railroad	Annual cost savings on-branch	$ -1,805,730
	Annual cost savings off-branch	-1,461,381
Truck/User	Annual line haul and handling cost	5,482,412
Barge/User	Annual cost	477,047
Other	Net salvage value of rehabilitation materials	2,550,345
	Rehabilitation, Scobey to Opheim Alternative	
Railroad	Annual cost savings on-branch	$ - 646,181
	Annual cost savings off-branch	- 162,431
Truck/User	Annual line haul and handling cost	659,417
Barge/User	Annual cost	65,314
Other	Net salvage value of rehabilitation materials	2,645,225
	Rehabilitation, Bainville to Opheim Alternative	
Railroad	Annual cost savings on-branch	$ -2,432,154
	Annual cost savings off-branch	-1,556,929
Truck/User	Annual line haul and handling cost	5,846,326
Barge/User	Annual cost	515,467
Other	Net salvage value of rehabilitation materials	5,195,570

Note: Negative value indicates disbenefit to affected party.

SOURCE: Wilbur Smith and Associates.

TABLE 5-1.12
BENEFIT-COST ANALYSIS
OF ALTERNATIVE PROJECTS
Bainville to Opheim

ALTERNATIVE PROJECT	PROJECT COST	PRESENT VALUE(1) Benefit	Cost (000's)	Net	BENEFIT/COST RATIO
Rehabilitation, Bainville to Scobey	$4,673.0	$46,102.4	$28,965.1	$17,137.3	1.59
Rehabilitation, Scobey to Opheim	4,668.7	7,247.1	10,681.0	-3,433.9	0.68
Rehabilitation, Bainville to Opheim	9,341.7	50,952.4	39,001.9	11,950.5	1.31

(1) Discount rate - 4 percent.
Project life - 10 years.

SOURCE: Wilbur Smith and Associates.

Rehabilitation, Bainville to Scobey - The benefits of this project are the rail user costs that might occur if the line were abandoned, and the present value of these benefits over a 10-year period is $46.1 million. The ratio of project benefits to the present value of costs is 1.59. The project cost is the rehabilitation value presented earlier, $4.7 million.

Rehabilitation, Scobey to Opheim - The benefit/cost ratio of this option is lower than the first option because the cost, $4.7 million, is approximately the same, but the present value of benefits, $7.3 million, is lower. Benefits are lower because there is less traffic over this segment. The benefit/cost ratio of this option is 0.68.

Rehabilitation, Entire Line - This option is also high in terms of a benefit/cost ratio because the present values of benefits and costs are $50.9 million and $39.0 million respectively.

Conclusions

It appears that both the impacts of abandonment and the cost of the potential rehabilitation projects are relatively high. This line serves a large area, and alternatives to the rail line may not be as plentiful as in other areas of the State. Therefore it is recommended that the line be considered for a rehabilitation project for at least a portion of the line if such a project would help to insure continuing service and if the project compares favorably with other competing projects in this report.

RRPlan/E

BIG SANDY TO FORT BENTON
Burlington Northern Railroad

The Big Sandy to Fort Benton line in Choteau County is 41 miles long and is part of a 119-mile line between Pacific Junction and Great Falls. Several stations are listed for the segment under study, but the only station which generates traffic (except for the end points) is Loma. The line is out of service south of Loma due to poor soil conditions on the track. The location of the line is indicated in Figure 5-2.

Several issues surround the Big Sandy to Fort Benton segment:

- Category I which means the railroad intends to abandon the line within three years.
- Unstable soil conditions along portions of line near Missouri River have heavily damaged track; line is now out of service to through traffic.
- Big Sandy and Loma now served from Pacific Junction; Fort Benton now served from Great Falls.
- Some overhead traffic used to be routed over line to take advantage of transit rates via Great Falls; rate is still used but traffic routed another way; concern has been expressed that abandonment will cause elimination of transit privilege.
- Shippers in Big Sandy and Ft. Benton seriously concerned about being on a "stub-end" of a branch line; since segment south of Loma is out of service, this situation has effectively occurred already.

Rail Use

Two tables are presented to depict rail usage on the line. Table 5-2.1 indicates that the only station directly affected by an abandonment is Loma which generated 75 carloads in 1980 according to the BN. Traffic generated on this segment has steadily declined since the first year of

TABLE 5-2.1
RAILROAD USE STATISTICS - 1980
Big Sandy to Fort Benton

STATION	CARLOADS Number	CARLOADS Percent	TONS Number	TONS Percent	COMMODITY
		Originating			
Loma	75	100.0	6,029	100.0	Farm Products
		Terminating			
None					
	75	100.0	6,029	100.0	

1980 Statistical Summary

Length: 40.8 miles
Million Gross Ton-Miles Per Mile: 1.888
Carloads Per Week: 1.4
Carloads Per Mile: 1.8
Revenue: $154,025

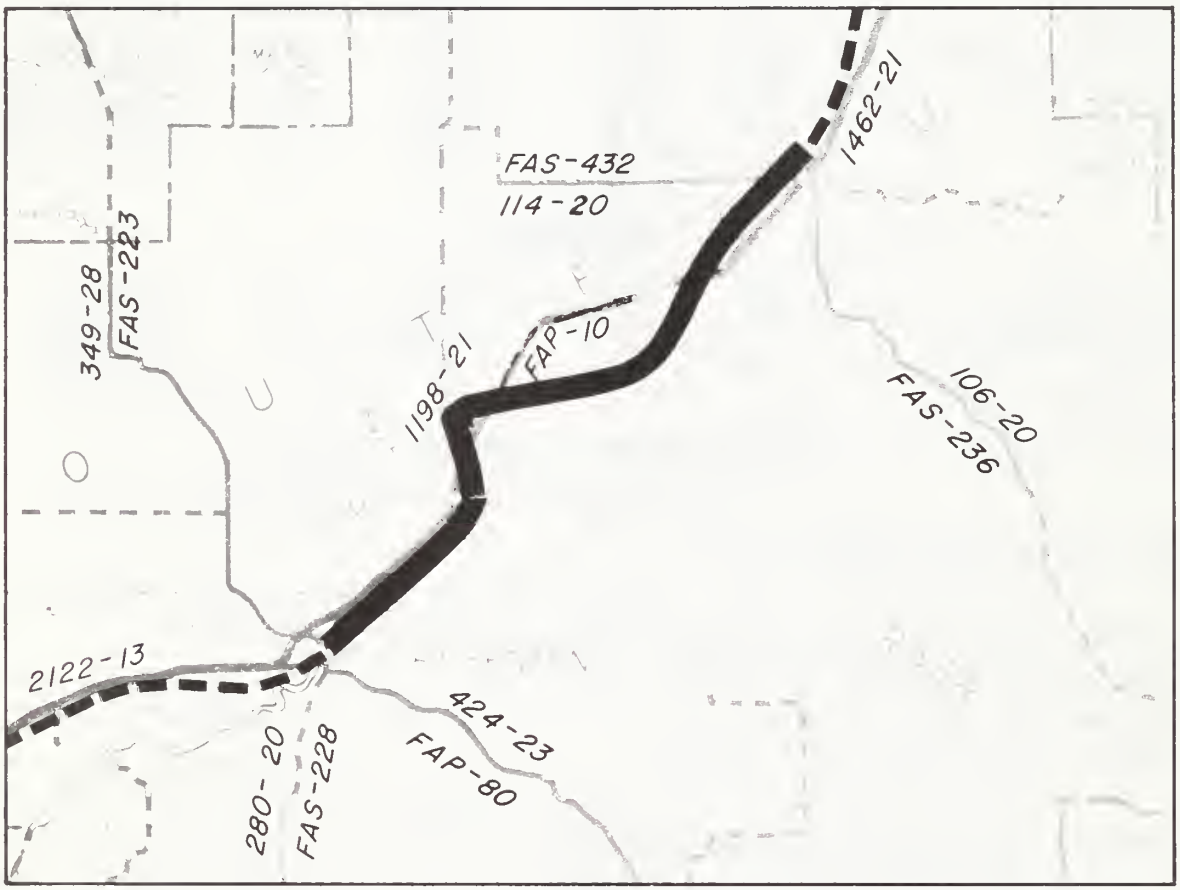
Traffic Volume History

1976	228
1977	161
1978	120
1979	101
1980	75

SOURCE: Burlington Northern Railroad
Montana Department of Commerce

BIG SANDY - FT. BENTON

RAILROAD : BURLINGTON NORTHERN
LENGTH : 40.8 MILES
COUNTIES : CHOUTEAU
STATUS : POTENTIAL ABANDONMENT - CATEGORY I - OUT OF SERVICE



0 10 20 30

MILES

LEGEND

SUBJECT LINE
OTHER LINES IN THIS REPORT
LINES PREVIOUSLY ANALYZED
ALL OTHER LINES
325-12 1981 ADT - % TRUCK

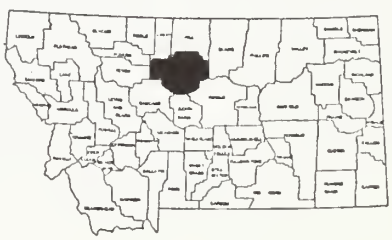


FIGURE 5-2

TABLE 5-2.2
RAILROAD USE STATISTICS - 1980
Pacific Jct. to Great Falls

STATION	CARLOADS Number	CARLOADS Percent	TONS Number	TONS Percent	COMMODITY
		Originating			
Laredo	80	2.9	7,920	3.0	Farm Products
Box Elder	213	7.8	21,087	7.9	Farm Products
Big Sandy	842	30.7	83,358	31.4	Farm Products
Loma	75	2.7	6,029	2.3	Farm Products
Fort Benton	989	36.0	97,911	36.9	Farm Products
Carter	289	10.5	28,611	10.8	Farm Products
Floweree	15	0.5	1,485	0.6	Farm Products
Portage	40	1.5	3,960	1.5	Farm Products
		Terminating			
Big Sandy	84	3.1	7,700	2.8	Chemicals
Fort Benton	52	1.9	1,000	0.4	Chemicals
Carter	66	2.4	6,408	2.4	Chemicals
Total Traffic	2,745	100.0	265,469	100.0	

1980 Statistical Summary

Length: 119.3 miles
Million Gross Ton-Miles Per Mile: 1.888
Carloads Per Week: 52.8
Carloads Per Mile: 23.0
Revenue: $5,637,000 (estimated)

SOURCE: Burlington Northern Railroad
Montana Department of Commerce.

BN - provided data which is 1976. Table 5-2.2 compares the traffic for all stations between but not including Pacific Junction and Great Falls. As shown the total 1980 traffic was over 2,700 cars of which over 90 percent was grain. No estimate is available for any overhead traffic that may have moved over the line in 1980.

Only one company is an active rail user between Big Sandy and Fort Benton. This user is listed in Table 5-2.3. The User Survey conducted by the Department of Commerce identified 25 other users between Pacific Jct. and Great Falls.

TABLE 5-2.3
RAILROAD USERS
Big Sandy to Fort Benton

NAME	STATION	SIDING(1)	COMMODITY
General Mills	Loma	P	Farm Products

(1) P - Private or leased siding on premises.
T - Team track

SOURCE: Burlington Northern Railroad
Montana Department of Commerce

Rail Service

Service to Fort Benton is currently provided from Great Falls, and service to Loma is provided from Pacific Junction. The stations are served "as required" according to the BN. The maximum speed for the portions in service is 40 mph.

Since a portion of the line between Great Falls and Pacific Jct. is out of serivce, the railroad has had to offer service from each end. Tables 5-2.4 and 5-2.5 are estimates of the net cost for this operation and for the former operation respectively. As shown, the current method of operation is $241,000 more profitable than the former operation.

TABLE 5-2.4
ESTIMATED REVENUES AND COSTS
Pacific Jct. to Loma
and
Great Falls to Fort Benton

REVENUES ATTRIBUTABLE	YEAR 1980
1. Freight Originated and/or Terminated on Branch	$5,637,000
AVOIDABLE COSTS	
2. On-Branch Costs (Lines 2a through 2c)	$1,451,269
a. Maintenance of Way and Structures (Normalized)	754,600
b. Transportation	495,685
c. Freight Car Costs	200,984
3. Off-Branch Costs	2,635,000
4. Total Avoidable Costs (Line 2 plus Line 3)	$ 4,086,269
5. Avoidable Loss from Operations (Line 1 minus Line 4)	($ 1,550,731)(1)
6. Net Liquidation (Line 6a plus Line 6b)	$ 9,255,502
a. Materials	7,623,151
b. Land	1,632,351
7. Rate of Return	12.1%
8. Opportunity Cost Foregone (Line 6 times Line 7)	1,119,916
9. Total Avoidable Loss (Line 5 plus Line 8)	($ 430,815)(1)

(1) Parenthesis indicates gain.

TABLE 5-2.5
ESTIMATED REVENUES AND COSTS
Pacific Jct. to Great Falls

REVENUES ATTRIBUTABLE	YEAR 1980
1. Freight Originated and/or Terminated on Branch	$5,673,000
AVOIDABLE COSTS	
2. On-Branch Costs (Lines 2a through 2c)	$1,607,782
a. Maintenance of Way and Structures (Normalized)	835,800
b. Transportation	549,450
c. Freight Car Costs	222,532
3. Off-Branch Costs	2,635,000
4. Total Avoidable Costs (Line 2 plus Line 3)	$4,242,782
5. Avoidable Loss from Operations (Line 1 minus Line 4)	($1,430,218)(1)
6. Net Liquidation (Line 6a plus Line 6b)	$10,251,453
a. Materials	8,443,453
b. Land	1,808,000
7. Rate of Return	12.1%
8. Opportunity Cost Foregone (Line 6 times Line 7)	1,240,426
9. Total Avoidable Loss (Line 5 plus Line 8)	($ 189,792)(1)

(1) Parenthesis indicates gain.

SOURCE: Wilbur Smith and Associates

Highways

The subject line is paralleled by Federal Aid Primary 10. FAP 10 also connects Fort Benton with Great Falls and Big Sandy with Havre. These highways, along with other primary and secondary highways in the area are illustrated on Figure 5-2. The distance from the only active station, Loma, to the nearest station not potentially subject to abandonment is 10 miles as listed in Table 5-2.6.

TABLE 5-2.6
DISTANCE TO SELECTED RAILROAD STATIONS
Big Sandy to Fort Benton

TOWN	ALTERNATIVE RAIL STATION	RAILROAD	ROAD DISTANCE
Loma	Fort Benton	BN	10

SOURCE: Wilbur Smith and Associates
Morrison-Maierle, Inc.

Rail Inventory and Condition

Table 5-2.7 summarizes the results of an inspection of this line. Except for one segment, the line is in good condition with heavy rail. The line has good crossties, and the track is well anchored. The segments in service can operate up to 40 mph.

At least one segment along the Missouri River is out of serivce due to poor soil conditions. The soil in this area is composed of bentonite which is very unstable when it is wet. Portions of an adjacent hill are washing onto the track, and the roadbed is settling from under the track. Current drainage efforts have proven unsuccessful.

Further inspection revealed the following with respect to the slope failures between Loma and Fort Benton.

- Irrigation on terrace above railroad is a contributing factor for failures.

TABLE 5-2.7
LINE FACILITIES CONDITION
Big Sandy to Fort Benton

Mileposts -	32.5 to 73.3
Rail -	20.8 miles of 110 lb. rail, 12.2 miles of 112 lb. rail, 6.2 miles of 115 lb. rail, 1.6 miles of 131 lb. rail; rail in good condition; 24-inch and 26-inch 4-hole joints.
Ties -	Treated mixed hardwoods and softwoods, generally in good condition.
Tie Plates - and Rail Anchors	Fully plated with both single shoulder and double shouder tie plates throughout; fully anchored (16 anchors per 39 ft. rail) and with back up or anchor spikes on many segments.
Ballast -	Crushed washed river rock, very good section except at some areas of very poor soil where ballast is fouled.
Bridges -	Eleven (11) bridges totalling approximately 1,850 L.F.
Road - Crossings	Five (5), one (1) paved, four (4) unpaved.
Roadbed/ Ditching -	Roadbed on northern portion generally in very good condition, areas along Missouri River south of Chappell between MP 69 and MP 70 are very unstable, soil comprised of bentonite in adjacent hillside is sliding onto roadbed; also bentonite in roadbed will not support load of embankment or track along one mile segment; attempts at corrective measures by railroad have been unsuccessful; drainage throughout areas of poor soil ineffective; information suggests that poor soil problems may also exist at point along Missouri River just south of Virgelle.
Vegetation -	Track generally clear of any vegetation; growth on roadbed or right-of-way generally controlled or cut.
Timetable - Speed	40 mph (segment between Chappell and Fort Benton out of service due to unstable roadbed and slide).

Weight Restriction - 315,000 lb. gross weight.

Tunnel - One approximately 500 ft. long at MP 68.6.

Net Liquidation - $2,885,200 (materials), $618,000 (land).

SOURCE: Wilbur Smith and Associates
Burlington Northern Railroad
Railway Line Clearances, Vol. 191, 1981

- Slope failures almost exclusively in natural and artificial fill zones. Fill saturates and loses much of its shear strength. Equilibrium may be as little as 5 percent slope.
- Four center pivots are currently in operation on the terrace above the railroad.

Rehabilitation Costs

Table 5-2.8 contains an estimate of the cost required to restore this line to through service. The remainder of the line is in good condition and needs no rehabilitation. As shown in the table, it is estimated that approximately $809,000 is needed to repair the damaged sections and to perform the necessary earthwork which will reduce the chance of a reoccurrence of the problem. A potential solution to the drainage problem would be to drain the artificial fill with pipe, cut the natural fill to 5 to 1 slopes, and drain the natural formations by using the gravel layer and pipe as a drain.

Effects of Abandonment

Railroad - Without this line between Big Sandy and Fort Benton, the railroad can continue to serve 97 percent of the traffic between Pacific Jct. and Great Falls. They will save approximately $277,000 annually from this action.

Rail Users - Only one rail user would be directly affected by a loss of service. If the traffic from this business is trucked to an associated business in Fort Benton, then the annual incremental cost of abandonment is $21,000. As discussed earlier, other users are concerned about the potential loss of transit rates and about the changes in rate differentials between the main and branch lines. These are very valid concerns, but the effects of such changes cannot be quantified in a study at this level of detail.

TABLE 5-2.8
REHABILITATION COST ESTIMATE
Big Sandy to Fort Benton
1.0 Miles

COST ITEM	COST
Track Removal, 5,280 T.F./mile @ $2.00	$ 10,560
Track Laying and Surfacing, 5,280 T.F./mile @ $11.00	58,080
Ballast, 3,500 tons/mile @ $3.75	13,125
Spikes, New (50%) 6,000 @ $0.36	2,160
Sub-ballast, 5,000 tons/mile @ $5.00	25,000
Subtotal - Track Repair	$ 108,925
Earthwork, 150,000 cubic yards @ $3.00	450,000
Drain Pipe, Steel, 6 inch, 15,000 ft. @ $10.00	150,000
Engineering and Testing	100,000
Subtotal - Drainage	$ 700,000
Total Rehabilitation Cost	$ 808,925

SOURCE: Wilbur Smith and Associates
Morrison-Maierle, Inc.

Highways/Bridges - Highway and bridge rehabilitation and reconstruction needs are summarized in Table 5-2.9 for principal routes in the area of this line. These needs have already been identified by the Department of Highways. Since so little traffic would be diverted to trucks if the line is abandoned, no new highway and bridge needs are expected. However, if rates change such that more grain is diverted to the main line elevators, then the area highways and bridges may need additional work.

TABLE 5-2.9
AREA HIGHWAY AND BRIDGE NEEDS
Big Sandy to Fort Benton

ROUTE	FROM	TO	LENGTH	ROADWAY NEEDS ($1000)	BRIDGE NEEDS ($1000)	AVERAGE COST PER MILE ($1000)
FAP 10	Great Falls	Fort Benton	38.9	$1,413	$1,862	$ 84
FAP 10	Fort Benton	Big Sandy	39.0	5,764	2,679	216
FAP 10	Big Sandy	Havre	31.7	0	132	4

SOURCE: Montana Department of Highways
Morrison-Maierle, Inc.

Alternatives Evaluated

Rehabilitation - This line is in good condition and needs no rehabilitation except for the rebuilding of the damaged segment of track and stabilization of the roadbed. The cost for this alternative is $809,000. There are few shipper benefits of this project, and the railroad can operate the two individual segments less expensively than with the line repaired. The possible benefits of preserving existing rate structures were not evaluated because of the difficulty in quantifying the benefits. If benefits for the only station directly impacted are counted, the benefit/cost ratio is 0.05. Tables 5-2.10 and 5-2.11 summarize this project.

Conclusions

The direct impacts of this potential abandonment are relatively low because of the small amount of traffic which would be diverted to trucks.

TABLE 5-2.10
DISTRIBUTION OF BENEFITS
OF ALTERNATIVE PROJECTS
Big Sandy to Fort Benton

BENEFIT TYPE	DESCRIPTION	ESTIMATED BENEFIT
	Rehabilitation Alternative	
Railroad	Annual cost savings on-branch.	$ 277,023
	Annual cost savings off-branch.	0
Truck/User	Annual line haul and handling cost.	20,849
Other	Net salvage value of rehabilitation materials.	0

Note: Negative value indicates disbenefit to affected party.

SOURCE: Wilbur Smith and Associates.

TABLE 5-2.11
BENEFIT-COST ANALYSIS
OF ALTERNATIVE PROJECTS
Big Sandy to Fort Benton

ALTERNATIVE PROJECT	PROJECT COST	PRESENT VALUE(1) Benefit	Cost	Net	BENEFIT/COST RATIO
		(000's)			
Rehabilitation	$808.9	$155.0	$2,868.7	$-2,713.7	0.05

(1) Discount rate - 4 percent.
Project life - 10 years.

If benefit/cost ratios are the only consideration for project funding, then this line must be ranked relatively low for this purpose. However, the effects on freight rates are another important consideration in the potential abandonment of a through line. If competitive rate structures are preserved after an abandonment, then the effects of abandonment are minimal. If these structures are not preserved, then two stations will be at the end of stub-end branch lines with rates tending to force traffic to main lines. The impact of abandonment of the segment between Big Sandy and Fort Benton could then be signficantly higher than that described herein.

72/N

BRAZIL CREEK SPUR
Burlington Northern Railroad

This 18.7-mile line was constructed to serve a bentonite mining operation at Brazil Creek 7 to 8 years ago. The line runs from Brazil Creek to the BN main line near Glasgow. The line lies entirely in Valley County and is illustrated in Figure 5-3.

The issues surrounding this line are the following:

- Category I which indicates potential abandonment within 3 years.
- Traffic in 1980 was less than 10% of 1979 traffic due to a reduction of market, principally in the steel and automobile industry.
- Plant is now shut down until market for bentonite improves.
- Line in very good condition.

Rail Use

As shown in Table 5-3.1, the line serves only one shipper at one station, Brazil Creek. The only commodity shipped was 88 outbound carloads of bentonite in 1980. There were 953 carloads of bentonite shipped in 1979. There have been no inbound shipments. The only shipper is now closed until the market changes. The company's name is listed in Table 5-3.2.

Rail Service

This line is not being used because of a lack of demand. The line extends from the BN's heavily used Hi-Line. Since the line is not used, a statement of revenues and costs was not prepared. However, the BN reported gross revenues of $157,000 and a profit in 1980.

Highways

There are no public roads paralleling the line. Principal highways in the area include a primary highway and a secondary highway as shown in

TABLE 5-3.1
RAILROAD USE STATISTICS - 1980
Brazil Creek Spur

STATION	CARLOADS Number	CARLOADS Percent	TONS Number	TONS Percent	COMMODITY
Originating					
Brazil Creek	88	100.0	7,639	100.0	Nonmetallic minerals
Terminating					
None					
Total Traffic	88	100.0	7,639	100.0	

1980 Statistical Summary

Length: 18.7 Miles
Million Gross Ton-Miles Per Mile: 0.016
Carloads Per Week: 1.7
Carloads Per Mile: 4.7
Revenue: $156,928

Traffic Volume History

1976	0
1977	0
1978	25
1979	953
1980	88

SOURCE: Burlington Northern Railroad
Montana Department of Commerce

TABLE 5-3.2
RAILROAD USERS
Brazil Creek Spur

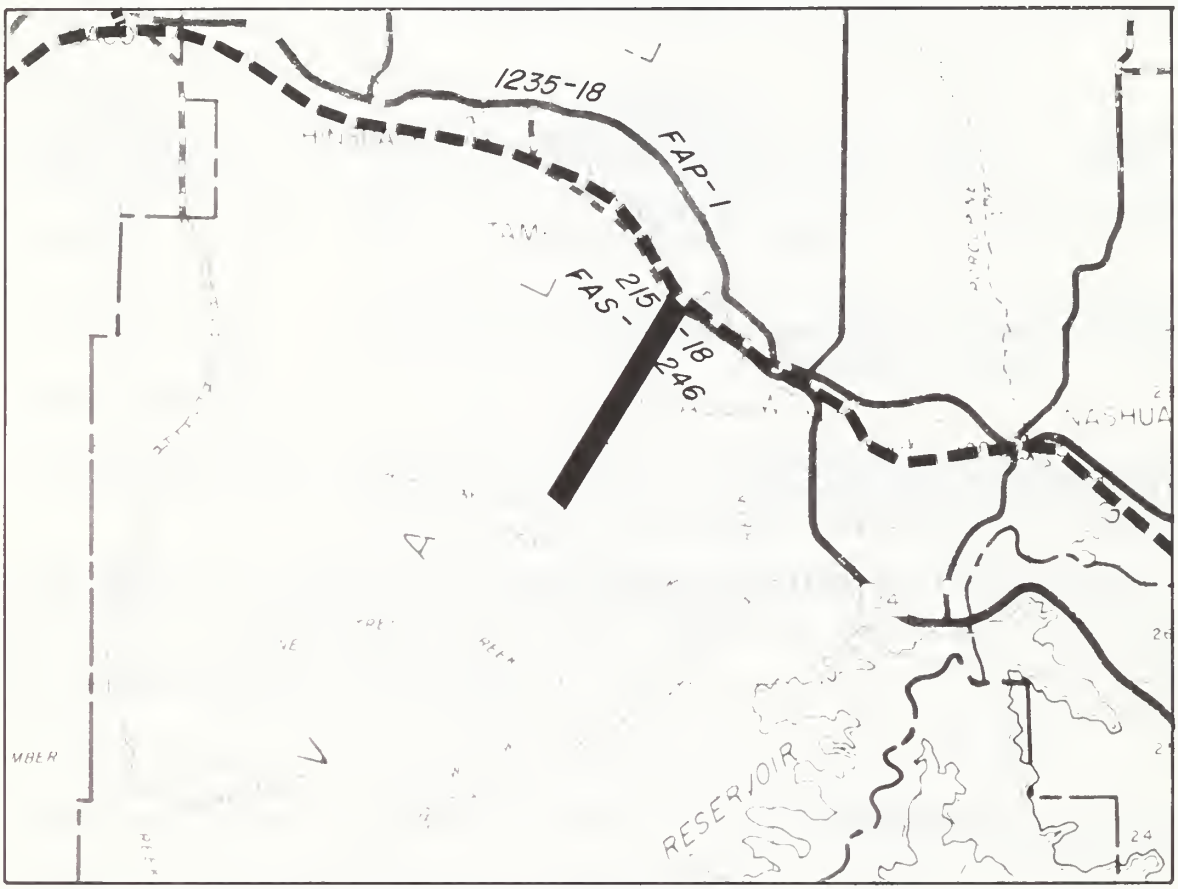
NAME	STATION	SIDING (1)	COMMODITY
Federal Bentonite	Brazil Creek	P	Nonmetallic minerals

(1) P - Private or leased siding on premises.
T - Team track.

SOURCE: Burlington Northern Railroad
Montana Department of Commerce

BRAZIL CREEK SPUR

RAILROAD : BURLINGTON NORTHERN
LENGTH : 18.7 MILES
COUNTIES : VALLEY
STATUS : POTENTIAL ABANDONMENT - CATEGORY I



0 10 20 30

MILES

LEGEND

SUBJECT LINE
OTHER LINES IN THIS REPORT
LINES PREVIOUSLY ANALYZED
ALL OTHER LINES
325 - 12 1981 ADT - % TRUCK

FIGURE 5-3

Figure 5-3. Traffic ranges from 215 vehicles per day on the secondary highway to 1,235 vehicles per day on the primary highway. Truck traffic is 18 percent. Distances to other rail stations are shown in Table 5-3.3.

TABLE 5-3.3
DISTANCE TO SELECTED
RAILROAD STATIONS
Brazil Creek Spur

TOWN	ALTERNATIVE RAIL STATION	RAILROAD	ROAD DISTANCE
Brazil Creek	Glasgow	BN	24
	Tampico	BN	24

SOURCE: Wilbur Smith and Associates
Morrison-Maierle

Rail Inventory and Condition

As detailed in Table 5-3.4, the Brazil Creek Spur is in good condition and is laid with heavy rail. The line is comparatively new and has had little traffic over it. There is no rehabilitation necessary for the Brazil Creek Spur.

Effects of Abandonment

Railroad - The BN is not operating this line because the shipper has not required service. However, the railroad is incurring a cost in connection with the value of the assets which are currently unproductive. Therefore, abandonment would allow the railroad to use these assets, estimated at $ 1,344,000, in other parts of the system.

Rail Users - The company which used this line intends to reopen the plant if the market improves. According to a survey in June, 1982 the plant could ship as much as 150,000 tons of bentonite annually. Since this amount is considerably higher than the company's highest level in

TABLE 5-3.4
LINE FACILITIES CONDITION
Brazil Creek Spur

Mileposts	-	0.0 to 18.7
Rail	-	18.7 miles of 112 lb. rail generally in good condition; 24-inch 4-hole joints; rail layed with opposing joints.
Ties	-	Treated mixed hardwoods in good condition.
Tie Plates & Rail Anchors	-	Fully plated with double shoulder tie plates; fully anchored, 16 anchors per 39 foot rail.
Ballast	-	Large river gravel and some dirt.
Bridges	-	Approximately three (3) bridges, those observed appeared to be in good condition.
Road Crossings	-	Three (3) unpaved.
Roadbed/Ditching	-	Roadbed width generally adequate; however, some scattered locations are on narrow embankment with evidence of some slight settlement; no drainage problems noted.
Vegetation	-	Track and roadbed generally clean, no significant growth on right-of-way.
Timetable Speed	-	Not stated.
Weight Restriction	-	263,000 lbs. gross weight.
Net Liquidation	-	$1,311,000 (materials); $33,000 (land).

SOURCES: Wilbur Smith and Associates
Burlingtion Northern Railroad
Railway Line Clearances, Vol. 191, 1981

1979, the impact of abandonment was based on the historical high level. If this traffic had to be trucked to the main line, the incremental cost of such action is estimated at approximately $252,000 annually in addition to the cost of a loading facility estimated at $250,000.

Highways/Bridges - Identified needs of highways and bridges in the area are summarized on Table 5-3.5. The only access to the mine is by

an unimproved road. This road would have to be improved if bentonite trucks were to use it. This improvement (grading, drainage, graveling) is estimated to cost $1,650,000. Approximately 19 vehicles per day would use this road.

TABLE 5-3.5
AREA HIGHWAY AND BRIDGE NEEDS
Brazil Creek Spur

Route	From	To	Length	Highway Needs ($1000)	Bridge Needs ($1000)	Average Cost/Mile ($1000)
FAP 1	Hinsdale	Glasgow	29	$ 3,142	$ 985	$ 142
FAS 246	Tampico	Glasgow	12	309	351	55

SOURCE: Montana Department of Highways
Morrison-Maierle, Inc.

Alternatives Evaluated

Tables 5-3.6 and 5-3.7 contain an evaluation of two alternatives which were considered for this line.

Acquisition - Since the only business on the line is temporarily closed, one alternative might be for the company to acquire the line for its later use. The cost of the action is estimated at $1,344,000, the value of the line. The present value of benefits for this option is estimated at $4.5 million, and the benefit/cost ratio is 0.98. A primary reason for the ratio is the road improvement costs that would be necessary if trucks had to go to the main line.

Substitute Service - If the mine were to re-open after an abandonment, the road to the main line would have to be improved to accommodate truck traffic. This cost is estimated at $1,650,000, and the benefits are the net difference between the railroad cost of service and the truck and transfer costs. The ratio of benefits to costs is 0.82.

Conclusions

The alternatives considered for this line have relatively high ratios, but they are based on the speculation about the mine re-opening. However, the railroad has unproductive assets on this line and may try to abandon. For that reason it is concluded that the former shipper should consider continued negotiation with the railroad and/or acquisition until such time as the market is more favorable.

TABLE 5-3.6
DISTRIBUTION OF BENEFITS
OF ALTERNATIVE PROJECTS
Brazil Creek Spur
Potential Traffic Level

BENEFIT TYPE	DESCRIPTION	ESTIMATED BENEFIT
	Acquisition Alternative (1)	
Railroad/ Operator	Annual cost savings on-branch	$ - 429,627
	Annual cost savings off-branch	0
Truck/User	Annual line haul and handling cost	252,291
Other	Liquidation value of land	33,000
	Net salvage value of track materials	900,000
	Road construction cost	1,650,000
	Annual road maintenance	15,000
	Cost of loading facility	250,000
	Substitute Service Alternative (1)	
Railroad	Annual cost savings on-branch	$ 429,627
	Annual cost savings off-branch	0
Truck/User	Annual line haul and handling cost	- 252,291
Other	Annual road maintenance	- 15,000
	Cost of loading facility	- 250,000

(1) Mine presently closed; mine open at 953 cars for this analysis.

Note: Negative value indicates disbenefit to affected party.

SOURCE: Wilbur Smith and Associates.

TABLE 5-3.7
BENEFIT-COST ANALYSIS
OF ALTERNATIVE PROJECTS
Brazil Creek Spur

ALTERNATIVE PROJECT	PROJECT COST	PRESENT VALUE(1) Benefit	Cost (000's)	Net	BENEFIT/COST RATIO
Acquisition	$1,344.0	$4,455.4	$4,538.4	$ - 83.0	0.98
Substitute Service	1,650.0	3,194.4	3,877.8	- 683.4	0.82

(1) Discount rate - 4 percent.
Project life - 10 years.

SOURCE: Wilbur Smith and Associates.

RPT85/F

BUTTE TO WHITEHALL
Burlington Northern Railroad

This line runs east from Butte for approximately 29 miles to Whitehall as illustrated in Figure 5-4. Although the line is in fair to good condition, there has been no originating and terminating traffic in over 6 years.

The status and issues of the Butte/Whitehall line are as follows:

- Category I which indicates that the railroad intends to file for an abandonment within 3 years.
- No traffic attributed to the line; only limited amounts of overhead (through) traffic.
- Most overhead traffic moves via Helena.
- State and others concerned over movement of oversized traffic to and from Butte. Butte/Whitehall segment has significantly better clearances than the segment west of Helena.
- Potential AMTRAK route if southern service is restored.

Rail Use

The BN has reported no originating and terminating traffic between Butte and Whitehall since at least 1976. Occassional high and wide loads are moved because other routings are more restrictive. The BN estimates that less than a dozen high and wide loads are moved each year over this segment.

Rail Service

This line is generally used only for high and/or wide loads because other routes are more restrictive. The limiting dimensions of several BN segments are shown in Table 5-4.1. From this table, four routes can be constructed with the following limiting height for a twelve foot wide load:

- Laurel/Butte/Sandpoint, ID - 16'6" between Paradise and Sandpoint.
- Laurel/Helena/Sandpoint, ID - 10'0" between Helena and Garrison.

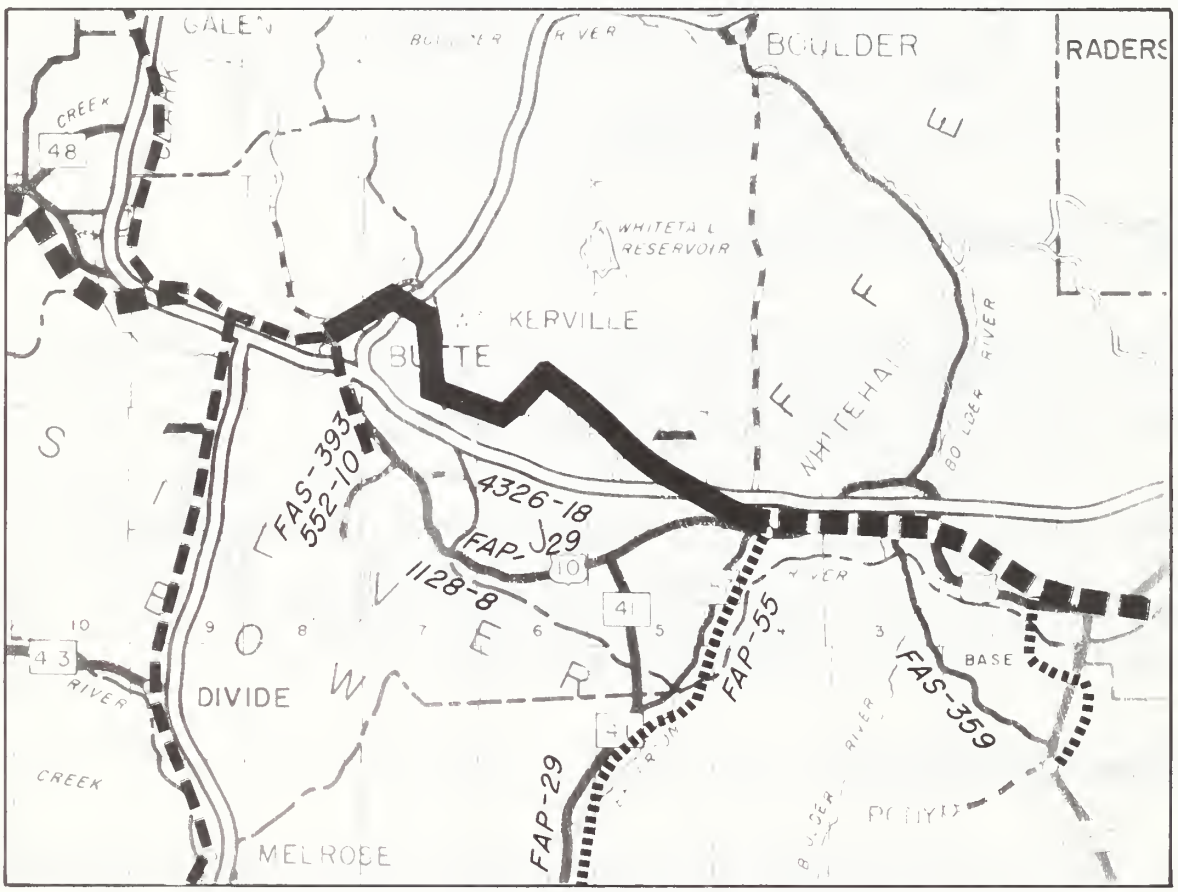
TABLE 5-4.1
MAXIMUM HEIGHT ABOVE TOP OF RAIL
FOR 12 FOOT WIDE LOADS
Selected Segments
Burlington Northern Railroad

LINE SEGMENT	MAXIMUM ALLOWABLE HEIGHT FOR 12 FT. WIDTH
Laurel/Logan	20'0"
Logan/Butte/Garrison	17'0"
Logan/Helena	20'0"
Helena/Great Falls	15'0"
Helena/Garrison	10'0"
Garrison/DeSmet	17'3"
DeSmet/St. Regis/Paradise	16'9"
Paradise/Sandpoint, ID	10'6"
Laurel/Great Falls	15'6"
Great Falls/Shelby	19'3"
Shelby/Cut Bank	19'3"
Cut Bank/Sandpoint, ID	15'9"

SOURCE: Railway Line Clearances, Volume 191, National Railway Clearance Publication Company, New York, 1981.

BUTTE - WHITEHALL

RAILROAD : BURLINGTON NORTHERN
LENGTH : 28.8 MILES
COUNTIES : SILVER BOW, JEFFERSON
STATUS : POTENTIAL ABANDONMENT - CATEGORY I



0 10 20 30

MILES

LEGEND

SUBJECT LINE
OTHER LINES IN THIS REPORT
LINES PREVIOUSLY ANALYZED
ALL OTHER LINES
325-12 1961 ADT - % TRUCK

FIGURE 5-4

- Laurel/Great Falls/Sandpoint, ID - 15'6" between Laurel and Great Falls.
- Laurel/Helena/Great Falls/Sandpoint, ID - 15'0" between Helena and Great Falls.

Highways

The Butte/Whitehall line is paralleled by Interstate 90 which has an 1981 ADT of 4,326 vehicles with 18 percent truck traffic and FAP 29 which has a 1981 ADT of 1,128 with 8 percent truck traffic. The highways and traffic volumes are illustrated in Figure 5-4.

Rail Inventory and Condition

The inspection of this line was conducted by hy-rail vehicle, and the results of that inspection are detailed in Table 5-4.2. The line has heavy rail, and it is exhibiting some wear particularly on curves. Some rail ends are also chipping. The ties are in fair condition, and the track is well anchored. The bridges on this line are in very good condition, and the line can accommodate cars up to 315,000 pounds gross weight. The maximum speed is 50 mph for a short segment although the curves and grades require reductions to 20-25 mph in most areas.

Rehabilitation Costs

Table 5-4.3 provides the details of the estimated rehabilitation needs between Butte and Whitehall. The total estimated cost is $250,826 which is relatively low. This work would clean the cuts, replace some ties, and build up the broken rail ends.

Effects of Abandonment

Railroad - Without this line, the BN would release some assets which could be used elsewhere. However, as shown earlier, this line offers a

TABLE 5-4.2
LINE FACILITIES CONDITION
Butte to Whitehall

Mileposts	-	68.0 to 39.2.
Rail	-	3.7 miles of 100 lbs., 0.8 miles of 112 lb., 6.8 miles of 115 lb., 2.3 miles of 131 lb., 15.2 miles of 132 lb; heavier rail layed mostly on curves, 100 lb. rail only on tangents; rail on some curves has some gage face wear on high rail and low rail is flattening (as to be expected on tighter curves); rail on many curves has been transposed; some of older rail has battered rail ends; previously built up by welding, now beginning to chip out again; line and surface generally in good condition; both 24-inch 4-hole and 36-inch 6-hole joints; generally 6-hole on 115 lb., 112 lb. and 131 lb. rail.
Ties	-	Treated mixed hardwoods, generally in fair condition; ties between Spirerock (MP 50.5) and Homestake (MP 60.8) damaged by derailed car, some ties have been spotted in track since derailment, much better on curves.
Ties Plates and Rail Anchor		Fully plated with single shoulder tie plates in 100 lb. rail and double shoulder plates in heavier rail; most curves double spiked; screw or anchor spikes used throughout most curves; track well anchored throughout, most locations with 16 anchors per rail, however, many locations with older style rail anchors.
Ballast	-	Sand, dirt or screenings between Pipestone (MP 45.2) and Butte, good crushed rock ballast section between Whitehall and Pipestone.
Bridges	-	Five (5) bridges totalling approximately 1,800 L.F., all appear in very good condition.
Road Crossings	-	Five (5), two (2) paved, three (3) unpaved.
Roadbed/Ditching	-	Roadbed width varies, many locations narrow but adequate; high fills on narrow but protected slopes; many cuts with weathered rock in side ditches, water standing in only a few cuts; area generally well drained, one location near MP 40 where stream is cutting into embankment.
Vegetation	-	Scattered locations of light weeds or grass in track or at ends of ties; roadbed and right-of-way beginning to grow up with small trees at some locations.

TABLE 5-4.2
Continued

Timetable Speed-	50 mph, MP 39.2 to MP 43 25 mph ascending/descending MP 43 to MP 46.4 25 mph, MP 46.4 to Skone 25 mph ascending/20 mph descending, Skone to MP 68.
Weight Restriction-	315,000 lb. gross weight.
Tunnels -	Two (2), one 117 ft. long, one 628 ft. long; both generally in good condition, shorter tunnel has timber portals.
Net Liquidation -	$2,492,300 (materials) $35,000 (land).

SOURCES: Wilbur Smith and Associates
Burlington Northern Railroad
Railway Line Clearances, Vol. 191, 1981.

TABLE 5-4.3
REHABILITATION COST ESTIMATE
Butte to Whitehall

COST ITEM	COST
Clean Cuts, 5 miles @ $2,000	$ 10,000
Cut Brush, 10 miles @ $500	5,000
Crossties, New (600/mile x 10.3 miles) @ $17.00	105,060
Spikes, New (4,800/mile x 10.3 miles) @ $0.36	17,798
Ballast (700 tons/mile x 10.3 miles) @ $3.75	27,038
Unload Materials, 10.3 miles @ $1,500	15,450
Timber and Surface, 10.3 miles @ $6,600	67,980
Rail End Welding, 5 days @ $400	2,000
Roadbed Repair, Rip Rap, L.S.	500
Total Rehabilitation Cost	$ 250,826

SOURCE: Wilbur Smith and Associates.

less restrictive route for oversized shipments. Some of this traffic could be lost if the line were abandoned, but very few shipments are actually too large for alternate routes. Abandonment would also eliminate a potential east-west route option for AMTRAK under study at this time.

Rail Users - No railroad customers would be affected by abandonment except for occassional shippers of oversized traffic and for customers using the port of Butte which would lose a shorter eastern connection. Butte would be served from the north by BN and the south by the UP. Whitehall will continue to be served from the east.

Conclusions

No benefit/cost analysis for project funding was performed for this line since there is so little use made of the facility. The endpoints will continue to have adequate service. Some oversized shipments might be precluded if the line were abandoned but there are so few that project funding to preserve this traffic cannot be justified. Therefore, it is recommended that the line be ranked low for the potential use of state rail project funds.

CIRCLE TO BROCKWAY
Burlington Northern Railroad

The Circle/Brockway line is the last 10.5 miles of a 64-mile branch which extends west from Glendive. The only traffic on the line is farm products and much of this is gradually being diverted to Circle. Figure 5-5 illustrates this branch and other rail and highway facilities in the area.

The status and issues of this branch are as follows:

- Category I which indicates a potential abandonment within 3 years; line recently re-classified from Category II which indicated railroad was studying line but had made no abandonment decision; therefore, line is one step closer to abandonment.
- Grain subterminal under construction at Circle; several other elevators, including facility at Brockway, now controlled by Circle elevator.
- Traffic at Brockway low and may divert to new facility at Circle.
- Possibility of coal-related development in Circle area has been discussed.

Rail Use

This branch generated approximately 100 carloads of farm products in 1980 and had revenues of $386,000. This volume was the lowest in the 5 years for which data are available. These and other usage statistics are listed in Table 5-5.1, and the rail user's name is given in Table 5-5.2.

Rail Service

The train serving this branch also serves Circle and makes the 10.5-mile run to Brockway as required.

The 1980 revenue received from this short segment exceeded the cost by approximately $ 62,000 as shown in Table 5-5.3. This estimate includes

TABLE 5-5.1
RAILROAD USE STATISTICS - 1980
Circle to Brockway

STATION	CARLOADS Number	CARLOADS Percent	TONS Number	TONS Percent	COMMODITY
			Originating		
Brockway	103	100.0	9,428	100.0	Farm Products
			Terminating		
None					
Total Traffic	103	100.0	9,428	100.0	

1980 Statistical Summary:
Length: 10.5 miles
Million Gross Ton-Miles Per Miles: 0.083
Carloads Per Week: 2.0
Carloads Per Mile: 9.8
Revenue: $ 386,147

Traffic Volume History

1976	184
1977	134
1978	184
1979	141
1980	103

SOURCE: Burlington Northern Railroad
Montana Department of Commerce.

TABLE 5-5.2
RAILROAD USERS
Circle to Brockway

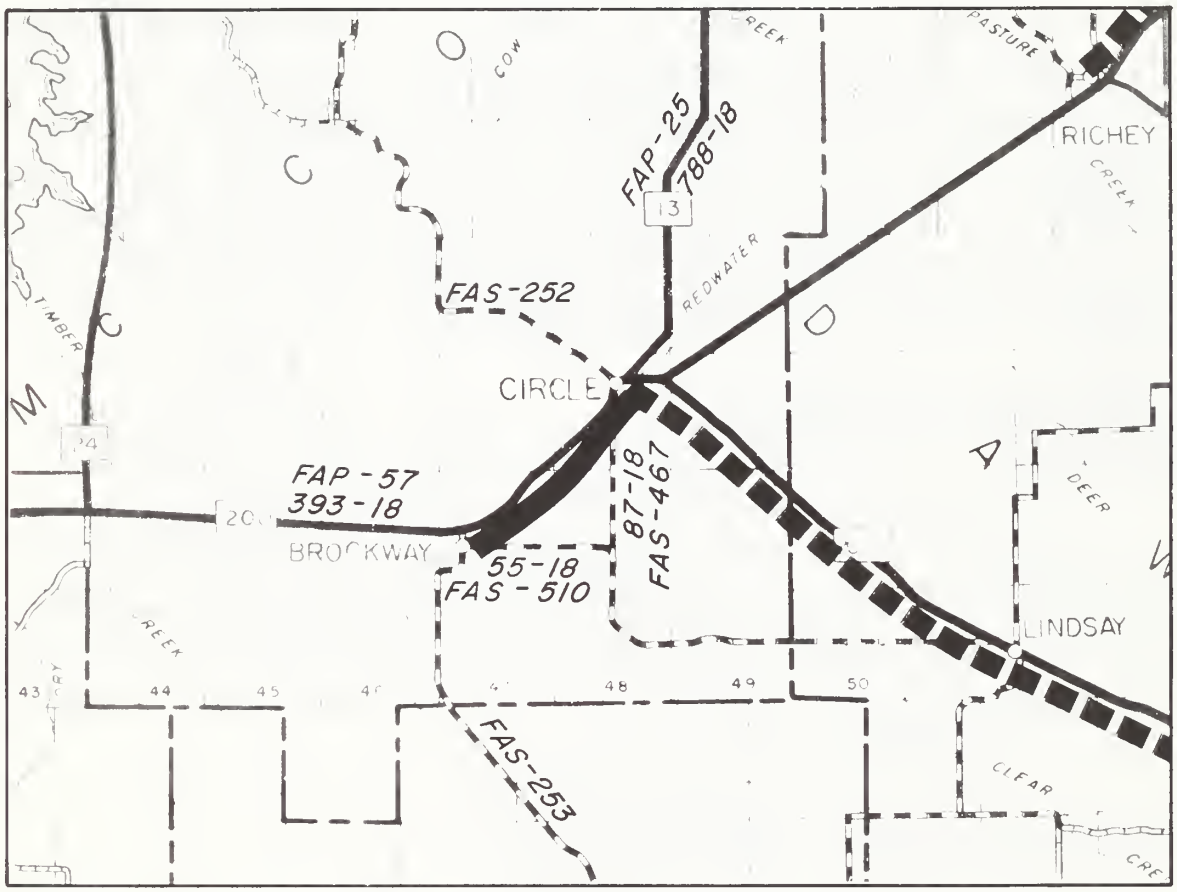
NAME	STATION	SIDING(1)	COMMODITY
Farmers Union Elevators Co.	Brockway	P	Farm Products

(1) P - Private or leased siding on premises.
T - Team track.

SOURCE: Burlington Northern Railroad
Montana Department of Commerce.

CIRCLE - BROCKWAY

RAILROAD: BURLINGTON NORTHERN
LENGTH : 10.5 MILES
COUNTIES: MC CONE
STATUS : POTENTIAL ABANDONMENT - CATEGORY I



0 10 20 30

MILES

LEGEND

SUBJECT LINE
OTHER LINES IN THIS REPORT
LINES PREVIOUSLY ANALYZED
ALL OTHER LINES
325-12 1981 ADT - % TRUCK

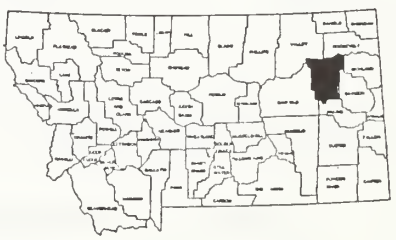


FIGURE 5-5

both an allowance for normalized maintenance and the opportunity cost of the land and track materials. Even though the line was profitable that year, much of the traffic will likely divert to Circle when the subterminal is completed.

Highways

The subject line is parallel to Federal Aid Primary Route 57. Federal Aid Secondary Routes 467 and 510 also combine to provide a highway route from Brockway to Circle. The roads are shown in Figure 5-5 along with traffic volumes and Federal aid designations. Traffic volumes on the highways are low with the highest volume, approximately 400 vehicles per day, on FAP 57. Truck traffic is approximately 18%. The distances to other rail stations are listed in Table 5-5.4.

Rail Inventory and Condition

As indicated in Table 5-5.5, this end of the branch is in generally fair condition. The rail is of medium weight, and the crossties are in fair condition. The track has few plates and is not anchored, but there is little evidence of rail running because the traffic level is low. Finally some areas have poor subgrade which can cause problems in maintaining surface and alignment.

Rehabilitation Costs

Since this line is in fair condition, comparatively little is needed for a long term rehabilitation. Table 5-5.6 presents the cost estimate of $186,000. The major costs are for rail anchors, tie plates, and additional ballast.

Effects of Abandonment

Railroad - The abandonment of this 10.5-mile segment would enable the BN to remove an under-utilized asset and to use those assets elsewhere. As shown earlier the railroad made a profit during 1980, but this traffic will likely be diverted to Circle even without an abandonment.

TABLE 5-5.3
ESTIMATED REVENUES AND COSTS
Circle to Brockway

REVENUES ATTRIBUTABLE	YEAR 1980
1. Freight Originated and/or Terminated on Branch	$ 386,147
AVOIDABLE COSTS	
2. On-Branch Costs (Lines 2a through 2c).	$ 97,776
a. Maintenance of Way and Structures (Normalized)	79,202
b. Transportation	11,982
c. Freight Car Costs	6,592
3. Off-Branch Costs	182,000
4. Total Avoidable Costs (Line 2 plus Line 3)	$ 279,776
5. Avoidable Loss from Operations (Line 1 minus Line 4)	($ 106,371)(1)
6. Net Liquidation (Line 6a plus Line 6b)	$ 365,300
a. Materials	320,300
b. Land	45,000
7. Rate of Return	12.1%
8. Opportunity Cost Foregone (Line 6 times Line 7)	44,201
9. Total Avoidable Loss (Line 5 plus Line 8)	($ 62,170)(1)

(1) Parenthesis indicates gain.

SOURCE: Wilbur Smith and Associates.

TABLE 5-5.4
DISTANCE TO SELECTED
RAILROAD STATIONS
Circle to Brockway

TOWN	ALTERNATIVE RAIL STATION	RAILROAD	ROAD DISTANCE
Brockway	Circle	BN	13
	Terry	BN	42

SOURCE: Wilbur Smith and Associates
Morrison-Maierle, Inc.

TABLE 5-5.5
LINE FACILITIES CONDITION
Circle to Brockway

Mileposts	-	51.50 to 62.02
Rail	-	10.52 miles of 90 lb. rail, generally in fair condition; 24-inch 4-hole joints.
Ties	-	Treated mixed hardwoods and softwoods, generally in fair condition.
Tie Plates & Rail Anchors	-	Fully plated with single shoulder tie plates on curves, very few tie plates on tangent track; no anchors noted; no evidence of rail running, apparently due to very little traffic.
Ballast	-	River gravel, dirt and cinders with scattered locations of small crushed stone; a few scattered spots of poor subgrade where ballast fouled and track is low and off cross level.
Bridges	-	Seven (7) bridges totalling approximately 800 L.F., those observed appeared to be well maintained.
Road Crossings	-	Two (2), one (1) paved and one (1) unpaved.
Roadbed/Ditching	-	Roadbed width is adequate; scattered locations of poor subgrade creating problems in maintaining track surface and alignment; no significant side drainage problems noted.
Vegetation	-	Scattered locations of grass and weeds in track; low weeds and grass on roadbed and right-of-way.
Timetable Speed	-	35 mph
Weight Restriction	-	263,000 lbs. gross weight.
Net Liquidation	-	$320,300 (materials), $45,000 (land).

SOURCES: Wilbur Smith and Associates
Burlington Northern Railroad
Railway Line Clearances, Vol. 191, 1981

TABLE 5-5.6
REHABILITATION COST ESTIMATE
Circle to Brockway

COST ITEM	COST
Rail Anchors, 90 lb., New (3,240/mile x 10.52 miles) @ $1.15	$ 39,198
Tie Plates, S.H. (3,000/mile x 10.52 miles) @ $1.50	47,340
Spikes, New (3,000/mile x 10.52 miles) @ $0.36	11,362
Ballast, (700 tons/mile x 10.52 miles) $3.75	27,615
Unload Material, 10.52 miles @ $1,500	15,780
Install Tie Plates and Rail Anchors, 10.52 miles @ $1,400	14,728
Surface and Line, 10.52 miles @ $2,500	26,300
Work Road Crossings 2 @ $2,000	4,000
Total Rehabilitation Costs	$186,323

SOURCE: Wilbur Smith and Associates.

Rail Users - Much of the traffic on this line has already shifted or will be shifting to the new subterminal at Circle. Therefore, the impacts of abandonment will be small since the facility will likely remain open as a satellite facility to the subterminal.

Highways/Bridges - Table 5-5.7 summarizes the estimated current rehabilitation and reconstruction needs for principal highways in the area. These costs have already been identified by the Montana Department of Highways and will not be materially affected by the addition of a relatively small number of truck trips. It is estimated that the abandonment of this line would generate approximately 156 and 365 additional grain and farm truck trips annually respectively. On a daily basis this increase is 1.4 trips per day.

TABLE 5-5.7
AREA HIGHWAY AND BRIDGE NEEDS
Circle to Brockway

ROUTE	FROM	TO	LENGTH	HIGHWAY NEEDS ($1000)	BRIDGE NEEDS ($1000)	AVERAGE COST PER MILE ($1000)
FAP 57	Brockway	Circle	12.3	$ 824	$ 329	$ 94
FAS 467	FAS 510	Circle	6.7	69	0	10
FAS 510	Brockway	FAS 467	8.5	87	0	10

SOURCE: Montana Department of Highways
Morrison-Maierle, Inc.

Energy - It is likely that traffic would be diverted to Circle after an abandonment and that the amount of fuel consumption would be nearly unchanged.

Alternatives Evaluated

Three alternative projects were evaluated for this branch as summarized in Tables 5-5.8 and 5-5.9.

Rehabilitation - If this option could prevent an abandonment, the benefit/cost ratio would be high at the 1980 traffic level except that the railroad cost of service outweighs the incremental shipper cost of abandonment. The ratio of benefits to costs is 0.23.

Acquisition - This alternative would prevent an abandonment via a transfer to another operator. However, the acquisition cost is higher than the rehabilitation cost, and this benefit/cost ratio, 0.37, is also relatively low. Potential for short-line operation is almost non-existent.

Acquisition/Rehabilitation - This alternative is the combination of the two just discussed. The cost is the sum of these two options, and the benefit/cost ratio is 0.32.

Conclusions

The economic analysis of this branch line reveals rather low benefit/cost ratios which apparently reflect the current situation in which traffic is already being diverted to another elevator in Circle. Therefore the impacts of abandonment of the Circle to Brockway segment would be relatively low, and it is recommended that the line be placed low in relation to other lines in this report.

TABLE 5-5.8
DISTRIBUTION OF BENEFITS
OF ALTERNATIVE PROJECTS
Circle to Brockway

BENEFIT TYPE	DESCRIPTION	ESTIMATED BENEFIT
	Rehabilitation Alternative	
Railroad	Annual cost savings on-branch	$ - 141,976
	Annual cost savings off-branch	0
Truck/User	Annual line haul and handling cost	37,057
Other	Net salvage value of rehabilitation materials	11,410
	Acquisition Alternative	
Railroad	Annual cost savings on-branch	$ - 141,976
	Annual cost savings off-branch	0
Truck/User	Annual line haul and handling cost	37,057
Other	Liquidation value of land.	45,000
	Net salvage value of track materials	320,300
	Acquisition/Rehabilitation Alternative	
Railroad	Annual cost savings on-branch	$ - 141,976
	Annual cost savings off-branch	0
Truck/User	Annual line haul and handling cost	37,057
Other	Liquidation value of land	45,000
	Net salvage value of track materials	331,710

Note: Negative value indicates disbenefit to affected party.

SOURCE: Wilbur Smith and Associates.

TABLE 5-5.9
BENEFIT-COST ANALYSIS
OF ALTERNATIVE PROJECTS
Circle to Brockway

ALTERNATIVE PROJECT	PROJECT COST	PRESENT VALUE(1) Benefit	Cost (000's)	Net	BENEFIT/COST RATIO
Rehabilitation	$186.3	$283.5	$1,242.0	$- 958.4	0.23
Acquisition	365.3	532.2	1,420.9	- 888.8	0.37
Acquisition/Rehabilitation	551.6	508.6	1,607.3	-1,098.7	0.32

(1) Discount rate - 4 percent.
Project life - 10 years.

SOURCE: Wilbur Smith and Associates.

COLUMBIA FALLS TO SOMERS
Burlington Northern Railroad

This 25-mile branch line is in Flathead County and extends south from Columbia Falls to Somers on the northern shore of Flathead Lake. Significant volumes of traffic are generated at two stations, Kalispell and Somers. The principal traffic is lumber and wood products and farm products. Figure 5-6 illustrates the location of this branch line.

The status and several issues concerning this line are as follows:

- Light density line which has not been identified for possible abandonment.
- Kalispell is the only source for revenue traffic on the branch; Somers is the site of a crosstie treatment plant owned by the BN.
- Major traffic at Kalispell is farm products and lumber and wood products; lumber industry has been depressed due to the economy, and traffic volumes have declined from the 1980 base year.

Rail Use

As detailed in Table 5-6.1 over 1,600 carloads of revenue traffic and nearly 1,900 carloads of non-revenue traffic were carried on this branch line in 1980. Most of the revenue traffic was farm products and lumber and wood products. Ten rail users were identified by the Department as listed in Table 5-6.2.

Rail Service

This line connects with the BN's northern main line at Columbia Falls. Service is provided five days per week as far as Kalispell and three days per week to Somers. The timetable speed is 40 mph to Kalispell and 10 mph to Somers.

The estimated revenue and cost to serve Kalispell is presented in Table 5-6.3. With revenue at nearly $2.9 million in 1980, it is estimated

that the line earned $1.1 million that year. Of the total costs, $95,000 was for normalized maintenance, and $82,000 was for the return on value of assets.

Highways

The Columbia Falls to Somers line is paralleled by Federal Aid Primary Highways 1 and 5. Traffic volumes vary from approximately 1,800 vehicles per day on FAP 1 to approximately 5,500 vehicles per day on FAP 5. Figure 5-6 shows the location and traffic volumes of these highways along with other highways in the area of the line, and Table 5-6.4 indicates the distances to other stations.

Rail Inventory and Condition

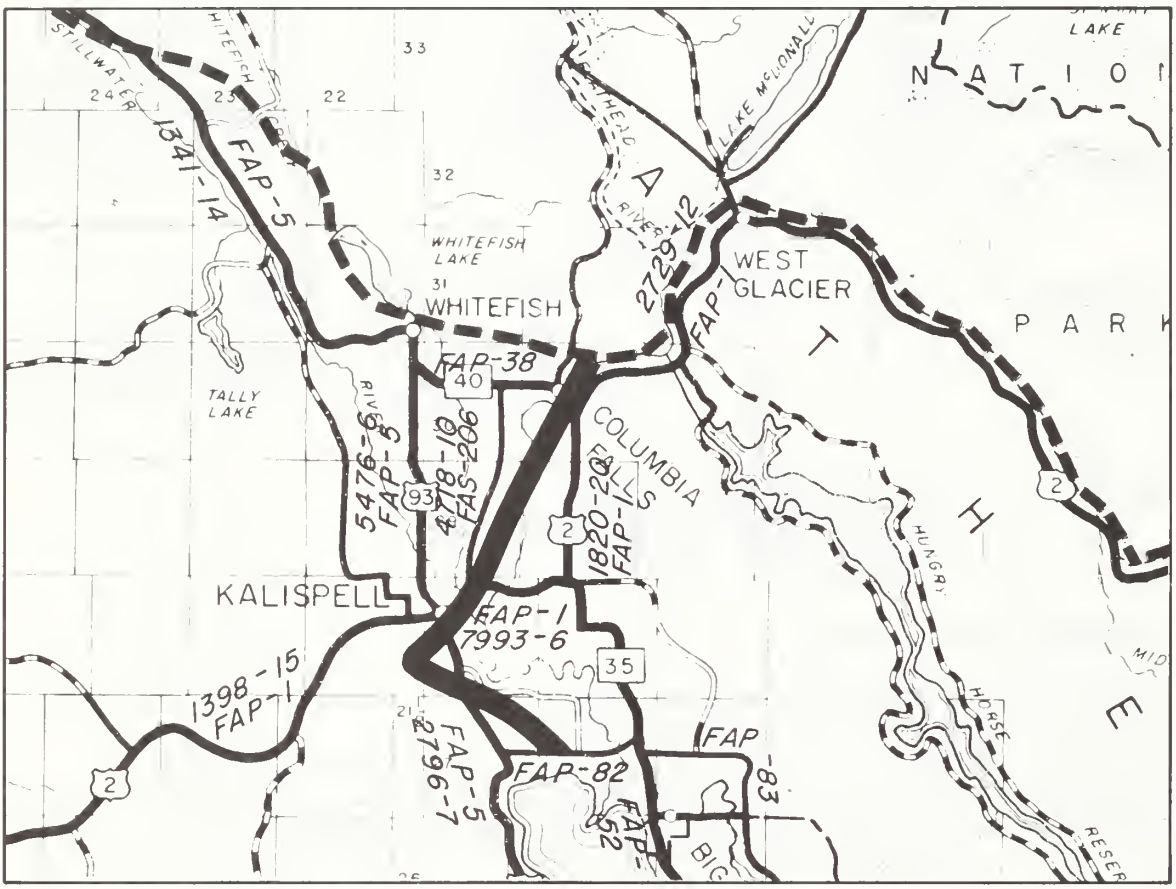
The results of a hy-rail inspection of this branch are detailed in Table 5-6.5. The basic conclusion that can be made is that there are two distinct segments along the line. Between Columbia Falls and Kalispell the line is composed of medium weight rail in fair condition with generally good ties. The speed limit on this segment is 40 mph. Between Kalispell and Somers, the line has very lightweight rail which is bent at many scattered locations. However, the ties in this segment are still in generally good condition.

Rehabilitation Costs

As discussed above, this branch line can be divided into two segments based on the condition, and the same procedure can be followed in terms of rehabilitation. There is no rehabilitation needed for the Columbia Falls/ Kalispell segment. However, approximately $960,000 is needed between Kalispell and Somers in order to stabilize the condition of the line and raise the speed to 25 mph (FRA safety class 2). Much of this cost would be to replace the light rail.

COLUMBIA FALLS - SOMERS

RAILROAD: BURLINGTON NORTHERN
LENGTH : 24.9 MILES
COUNTIES: FLATHEAD
STATUS : LIGHT DENSITY LINE



LEGEND

- SUBJECT LINE
- OTHER LINES IN THIS REPORT
- LINES PREVIOUSLY ANALYZED
- ALL OTHER LINES
- 325-12 1981 ADT - % TRUCK

FIGURE 5-6

TABLE 5-6.1
RAILROAD USE STATISTICS - 1980
Columbia Falls to Somers

STATION	CARLOADS Number	CARLOADS Percent	TONS Number	TONS Percent	COMMODITY
			Originating		
Kalispell	939	26.6	92,961	42.2	Farm Products
	601	17.0	28,588	10.9	Lumber & Wood Products
	8	0.2	620	0.3	Nonmetallic Minerals
	63	1.8	3,780	1.7	Waste & Scrap Materials
Somers	1,058	29.9	50,255	22.8	Lumber & Wood Products
			Terminating		
Kalispell	33	0.9	3,300	1.5	Chemicals
	5	0.1	300	0.2	Food Products
Somers	130	3.7	11,700	5.3	Petroleum Products
	700	19.8	33,250	15.1	Lumber & Wood Products
Total Traffic	3,537	100.0	224,754	100.0	

1980 Statistical Summary

Length: 24.9 miles (14.4 to Kalispell)
Million Gross Ton-Miles Per Mile: 0.357
Carloads Per Week: 31.7 (excludes Somers non-revenue traffic)
Carloads Per Mile: 114.5 (excludes Somers non-revenue traffic)
Revenue: $ 2,894,000 (excludes Somers non-revenue traffic)

SOURCE: Burlington Northern Railroad
Montana Department of Commerce

TABLE 5-6.2
RAILROAD USERS
Columbia Falls to Somers

NAME	STATION	SIDING (1)	COMMODITY
Equity Supply	Kalispell	P	Farm Products, Chemicals
Plum Creek	Kalispell	P	Lumber & Wood Products
Klinger Lumber	Kalispell	P	Lumber & Wood Products
McElroy & Wilken	Kalispell	P	Nonmetallic Minerals
Pacific Hide & Fur	Kalispell	P	Scrap Materials
Flathead Beverage	Kalispell	P	Food Products
Forest Products	Kalispell	P	Lumber & Wood Products
Carl Weisman & Sons	Kalispell	P	Scrap Materials
Kalispell Feed & Grain	Kalispell	P	Farm Products
BN Railroad Properties	Somers	P	Lumber & Wood Products, Petroleum Products

(1) P - Private or leased siding on premises.
T - Team track

SOURCE: Burlington Northern Railroad
Montana Department of Commerce

TABLE 5-6.3
ESTIMATED REVENUES AND COSTS
Columbia Falls to Kalispell

	REVENUES ATTRIBUTABLE	YEAR 1980
1.	Freight Originated and/or Terminated on Branch	$ 2,894,000
	AVOIDABLE COSTS	
2.	On-Branch Costs (Lines 2a through 2c)	$ 388,646
	a. Maintenance of Way and Structures (Normalized)	95,414
	b. Transportation	185,484
	c. Freight Car Costs	107,748
3.	Off-Branch Costs	1,329,742
4.	Total Avoidable Costs (Line 2 plus Line 3)	$ 1,718,388
5.	Avoidable Loss from Operations (Line 1 minus Line 4)	($ 1,175,612)(1)
6.	Net Liquidation (Line 6a plus Line 5b)	$ 674,725
	a. Materials	$ 613,475
	b. Land	61,000
7.	Rate of Return	12.1%
8.	Opportunity Cost Foregone (Line 6 times Line 7)	81,611
9.	Total Avoidable Loss (Line 5 plus Line 8)	($ 1,094,001)(1)

(1) Parenthesis indicates gain.

SOURCE: Wilbur Smith and Associates

TABLE 5-6.4
DISTANCE TO SELECTED
RAILROAD STATIONS
Columbia Falls to Somers

TOWN	ALTERNATIVE RAIL STATION	RAILROAD	ROAD DISTANCE
Kalispell	Whitefish	BN	14
	Columbia Falls	BN	12
Somers	Whitefish	BN	22
	Columbia Falls	BN	20

SOURCE: Wilbur Smith and Associates
Morrison-Maierle

Effects of Abandonment

Railroad - If this line were abandoned, the BN not only would lose approximately $1.1 million per year based on 1980 data but also would lose one of its crosstie treatment yards. The yard does not generate revenue traffic, but it is a supplier of an important product for the railroad.

Rail Users - It is anticipated that, without this line, the existing rail users which produce revenue traffic would switch to trucking to the main line as well as to either the Pacific north cost directly or via barge, such as the trucking of grain to Lewiston, ID.

Highways and Bridges - Table 5-6.7 summarizes current rehabilitation and reconstruction needs for principal highways which may be affected by an abandonment. If the line were abandoned, then these roads would experience approximately 13 more trucks per day which would tend to accelerate and increase the identified current needs. All of these truck trips would be using tractor and semi-trailer combinations.

TABLE 5-6.5
LINE FACILITIES CONDITION
Columbia Falls to Somers

Mileposts	-	1211.68 to 1236.86
Rail	-	15.0 miles of 100 lb. rail between Columbia Falls and Kalispell, approximately 10.2 miles of 60 lb. rail between Kalispell and Somers; 100 lb. rail generally in fair condition, 60 lb. rail generally with good surface, however rail is bent at many scattered locations of poor subgrade and at several locations where bridges have been filled; 4-hole, 24-inch joints, quarter cracked and broken joints noted in 60 lb. rail.
Ties	-	Treated mixed hardwoods, the condition generally good.
Tie Plates and Rail Anchors	-	Generally fully plated with single shoulder tie plates in 100 lb. rail and 90% plated with small single shoulder tie plates in 60 lb. rail segment, some double shoulder plates on bridges with 100 lb. rail; rail anchors on 100 lb. segment but none on 60 lb. rail.
Ballast	-	Generally good ballast section of crushed rock over dirt; several spots where additional ballast unloaded at locations of soft roadbed or where bridges previously filled and track has settled; ballast fouled at scattered soft roadbed locations.
Bridges	-	Five (5) bridges totalling 650 L.F., all generally in good condition.
Road Crossings	-	Twenty-six (26), eighteen (18) paved, eight (8) unpaved.
Roadbed/Ditching	-	Roadbed width generally adequate and stable north of Kalispell, south of Kalispell several locations of soft roadbed low where bridges previously filled and roadbed has not stabilized; no significant drainage problems noted.
Vegetation	-	Track and roadbed generally clean; roadbed and right-of-way growing up near Somers.
Timetable Speed	-	40 mph, Columbia Falls and Kalispell, 10 mph, Kalispell to Somers.
Weight Restrictions	-	263,000 lbs. gross weight.
Net Liquidation	-	$1,060,800 (materials), $99,000 (land).

SOURCE: Wilbur Smith and Associates
Burlington Northern Railroad
Railway Line Clearances, Vol. 191, 1981

TABLE 5-6.6
REHABILITATION COST ESTIMATE
Kalispell to Somers

COST ITEM	COST
Rail, 100 lb. Relay (176 tons/mile x 10.2 miles) @ $275	$ 493,680
Joints, 100 lb. S.H. (270/mile x 10.2 miles) @ $10	27,540
Bolts and Nut Locks, New (1,080/mile x 10.2 miles) @ $2.00	22,032
Tie Plates, S.H. (6,000/mile x 10.2 miles) @ $2.75	168,300
Spikes, New (12,000/mile x 10.2 miles) @ $0.36	44,064
Rail Anchors, New (3,240 x 10.2 miles) @ $1.15	38,005
Turnouts, #9, 100 lb. S.H., 3 @ $10,000	30,000
Ballast (500 tons/mile x 10.2 miles) @ $3.75	19,125
Lay Rail, 10.2 miles @ $15,000	153,000
Install Turnouts, 3 @ $3,000	9,000
Surface and Line, 5.0 miles @ $2,500	12,500
Smooth and Line, 5.2 miles @ $1,250	6,500
Work Road Crossings, 10 @ $2,000	20,000
Subtotal	$ 1,043,746
Less Value of Material Released	- 83,800
Total Rehabilitation Cost	$ 959,946

SOURCE: Wilbur Smith and Associates

TABLE 5-6.7
AREA HIGHWAY AND BRIDGE NEEDS
Columbia Falls to Somers

ROUTE	FROM	TO	LENGTH	ROADWAY NEEDS ($1,000)	BRIDGE NEEDS ($1,000)	AVERAGE COST PER MILE ($1,000)
FAP 1	Kalispell	Columbia Falls	16.8	$3,869	$2,082	$ 354
FAP 5	Whitefish	FAP 82	23.5	3,708	144	164
FAS 206	FAP 1	FAP 38	9.3	360	0	39

SOURCE: Montana Depatment of Highways
Morrison-Maierle, Inc.

Energy - Fuel usage in this area would increase by over 560,000 gallons annually since an abandonment would generate long haul trucking, which is less efficient than long distance rail movements.

Conclusions

This analysis indicates that the Columbia Falls to Kalispell segment is likely to be profitable and that the Kalispell to Somers segment is being used solely for railroad company material. It is further concluded that the profitable segment is not in need of rehabilitation which is the only project type for which this line is eligible. Therefore, it is recommended that this line be ranked low for project funding priorities since there is little need for funds.

DIXON TO POLSON
Burlington Northern Railroad

This 33 mile light density line extends from the BN main line at Dixon to Polson as illustrated in Figure 5-7. The principal towns are Pablo, Ronan, and Polson which generate all of the rail traffic. The majority of the rail traffic on this line is lumber and wood products.

The status and issues concerning the Dixon to Polson branch are as follows:

- Light density line which has not been identified for possible abandonment.
- Two principal rail customers.
- Major rail users currently use truck for a substantial part of their business.
- Some long distance lumber markets exist for truck movements.
- Lumber industry is depressed due to the economy.

Rail Use

Over 80 percent of the traffic on this line is lumber and wood products as summarized in Table 5-7.1. Other traffic consists of coal for residential use, agricultural products and other farming materials, and insulation. Thirteen rail users, listed in Table 5-7.2, were identified by the User Survey.

Rail Service

This line connects with the light density main line which runs from Paradise to DeSmet and is served twice a week. The timetable speed is 30 mph.

TABLE 5-7.1
RAILROAD USE STATISTICS - 1980
Dixon To Polson

STATION	CARLOADS Number	CARLOADS Percent	TONS Number	TONS Percent	COMMODITY
			Originating		
Pablo	550	58.4	22,000	50.7	Lumber & Wood Products
Ronan	13	1.4	871	2.0	Farm Products
Polson	142	15.1	5,680	13.1	Lumber & Wood Products
	8	0.8	584	1.4	Farm Products
			Terminating		
Ronan	3	0.3	53	0.1	Nonmetallic Minerals
	6	0.6	120	0.3	Machinery
	34	3.6	3,400	7.8	Chemicals
Polson	73	7.8	2,920	6.7	Lumber & Wood Products
	7	0.8	700	1.6	Chemicals
	100	10.6	7,000	16.1	Coal
	6	0.6	106	0.2	Nonmetallic Minerals
Total Traffic	942	100.0	43,434	100.0	

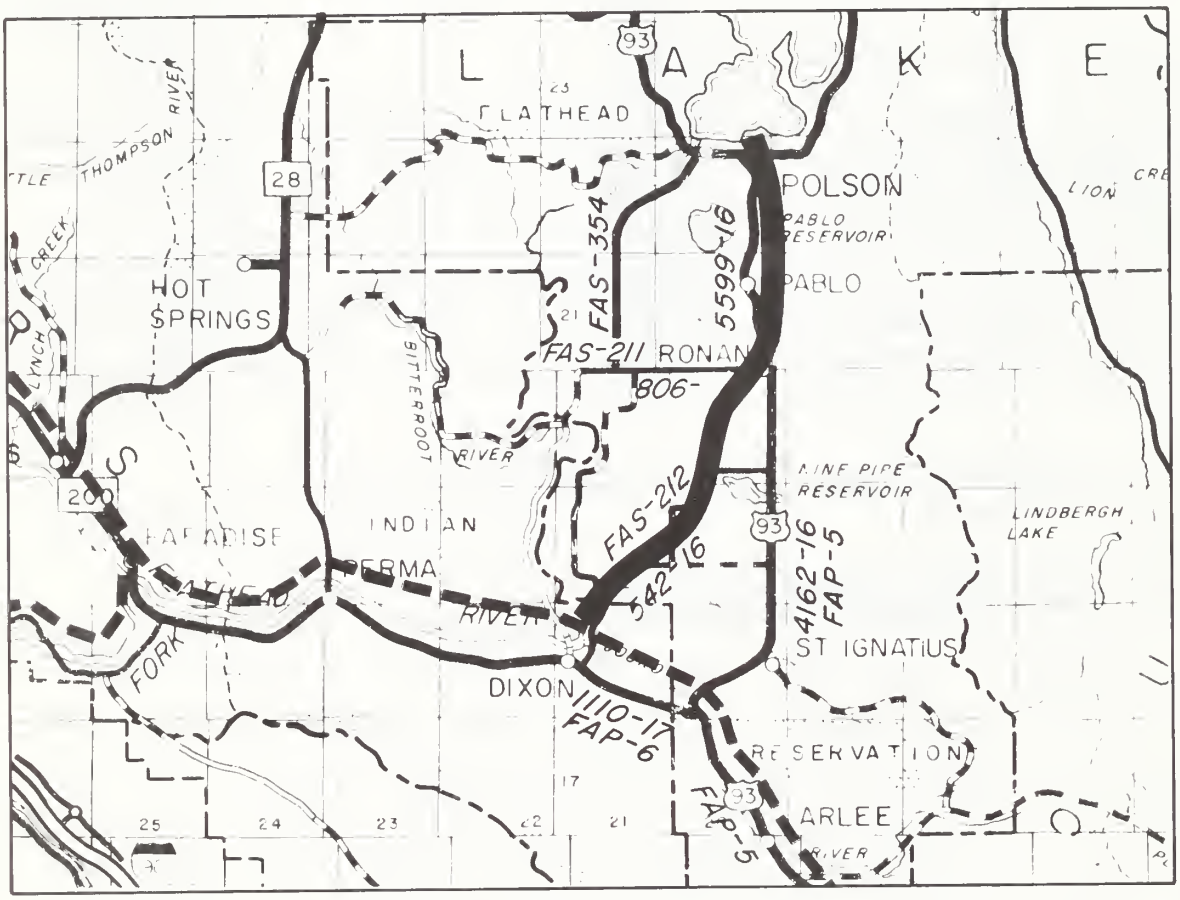
1980 Statistical Summary

Length: 33.4 miles
Million Gross Ton-Miles Per Mile: 0.119
Carloads Per Week: 18.1
Carloads Per Mile: 28.2
Revenue: $1,509,000

SOURCE: Burlington Northern Railroad
Montana Department of Commerce

DIXON - POLSON

RAILROAD : BURLINGTON NORTHERN
LENGTH : 33.4 MILES
COUNTIES : SANDERS, LAKE
STATUS : LIGHT DENSITY LINE



0 10 20 30

MILES

LEGEND

- SUBJECT LINE
- OTHER LINES IN THIS REPORT
- LINES PREVIOUSLY ANALYZED
- ALL OTHER LINES
- 325 - 12 1981 ADT - % TRUCK

FIGURE 5 - 7

TABLE 5-7.2
RAILROAD USERS
Dixon To Polson

NAME	STATION	SIDING(1)	COMMODITY
Woody's Big Sky Supply	Ronan	T	Nonmetallic Minerals
Western Feed and Supply	Ronan, Charlo, Pablo	T	Chemicals, Farm Products
Stedje Brothers	Ronan	T	Machinery
Cenex/Co-op and Supply	Ronan	T	Chemicals
Plum Creek	Ronan/Pablo	P	Lumber & Wood Products
Western Bee Supply	Polson	P	Lumber & Wood Products
Flathead Lumber	Polson	P	Lumber & Wood Products
Mountain Feed and Supply	Polson	T	Chemicals
Bjork Distributors	Polson	T	Coal
Roltson Co.	Polson	T	Nonmetallic Minerals
Skyline Supply	Polson	P	Nonmetallic Minerals
Polson Potato Growers	Polson	T	Lumber & Wood Products
Christmas Tree Harvesters	Polson	T	Lumber & Wood Products

(1) P - Private or leased siding on premises.
T - Team track

SOURCE: Burlington Northern Railroad
Montana Department of Commerce

Table 5-7.3 provides an estimate of the revenues and costs associated with the Dixon to Polson line. The revenues which the BN received in 1980 are $1,509,000, and the costs attributable to the line are $1,782,247. The cost includes a return on value of the investment in the line as well as an allowance for normalized maintenance. Since the cost exceeds the revenue, this line operated at a loss in 1980.

Highways

The Dixon to Polson line is paralleled by Federal Aid Primary Highway 5 and Federal Aid Secondary Highway 212 as illustrated by Figure 5-7. Traffic volumes vary from 542 vehicles per day on FAS 212 to 5,600 vehicles per day on FAP 5 with 16 percent trucks on both highways. FAP 5 also connects Ronan and St. Ignatius with the BN stations on the BN main line to the south. Table 5-7.4 lists the highway distances to the nearest BN station at Dixon.

Rail Inventory and Condition

The results of an independent inspection of the Dixon to Polson line are presented in Table 5-7.5. In general, the line is in reasonably good condition with standard weight limit and a timetable speed of 30 mph. The majority of the line has medium weight rail which is adequate for the type of traffic, however lighter weight rail should be replaced. The ties are in generally good condition except through lighter weight rail. The line is fully plated, but there are many locations with inadequate anchors which have allowed the ties to skew.

Rehabilitation Costs

Table 5-7.6 indicates that approximately $995,000 is needed to stabilize this line for a long term operating condition at the present standard. The majority of this cost is due to the need to replace segments of light weight rail.

TABLE 5-7.3
ESTIMATED REVENUES AND COSTS
Dixon To Polson

	REVENUES ATTRIBUTABLE	YEAR 1980
1.	Freight Originated and/or Terminated on Branch	$ 1,590,000
	AVOIDABLE COSTS	
2.	On-Branch Costs (Lines 2a through 2c)	$ 394,622
	a. Maintenance of Way and Structures (Normalized)	216,365
	b. Transportation	112,415
	c. Freight Car Costs	65,842
3.	Off-Branch Costs	$1,228,825
4.	Total Avoidable Costs (Line 2 plus Line 3)	$1,623,447
5.	Avoidable Loss from Operations (Line 1 minus Line 4)	$ 33,447
6.	Net Liquidation (Line 6a plus 6b)	$1,312,400
	a. Materials	907,400
	b. Land	405,000
7.	Rate of Return	12.1%
8.	Opportunity Cost Foregone (Line 6 times Line 7)	158,800
9.	Total Avoidable Loss (Line 5 plus Line 8)	$ 192,247

SOURCE: Wilbur Smith and Associates

TABLE 5-7.4
DISTANCE TO SELECTED RAILROAD STATIONS
Dixon To Polson

TOWN	ALTERNATIVE RAIL STATION	RAILROAD	ROAD DISTANCE (Miles)
Charlo	Dixon	BN	11.0
Ronan	Dixon	BN	19.0
Pablo	Dixon	BN	22.0
Polson	Dixon	BN	33.0

SOURCE: Wilbur Smith and Associates
Morrison-Maierle, Inc.

TABLE 5-7.5
LINE FACILITIES CONDITION
Dixon To Polson

Mileposts -	0.5 to 33.4
Rail -	Approximately 25.0 miles of 85 lb. rail and 7.9 miles of 70 lb. rail, except for 112 lb. rail through the turnout at MP 31.1 and 100 lb. rail on the east leg of the wye at Dixon; scattered locations with low or swinging joints and poor surface and alignment in lighter weight rail segments; angle bars noted on several rails at points where rail is defective; most joints 24-inch, 4-hole, several with quarter cracks and some loose in both 70 lb. and 85 lb. rail segments.
Ties -	Treated mixed hardwoods and softwoods generally in good condition; some ties damaged by joints especially in 70 lb. rail.
Tie Plates and Rail Anchors -	Fully plated with single shoulder tie plates, some noted as being broken in 70 lb. rail; varying number of anchors throughout length of line; many locations with inadequate or no anchors allowing rail to run and skew joint ties.
Ballast -	Generally small crushed rock and dirt, some scattered locations where additional ballast needed at heads of ties.
Bridges -	Five (5) bridges totalling 668 L.F., in good condition.
Road Crossings-	Twenty six (26), ten (10) paved, sixteen (16) unpaved.
Roadbed/ Ditching -	Roadbed width generally adequate although narrow at scattered locations; no significant drainage problems noted.
Vegegation -	Scattered locations of vines or weeds in track; grass in track in vicinity of Dunham and near Polson; right-of-way growth controlled, generally only low grasses or grain.

Timetable Speed - 30 mph.

Weight Restriction - 263,000 lbs. gross loading.

Net Liquidation - $907,400 (materials), $405,000 (land).

SOURCE: Wilbur Smith and Associates
Burlington Northern Railroad
Railway Line Clearances, Vol. 191, 1981.

TABLE 5-7.6
REHABILITATION COST ESTIMATE
Dixon to Polson

COST ITEM	COST
Rail, 100 lb. Relay (176 tons/mile x 8.4 miles) @ $275 (replaces 7.9 miles of 70 lb. and 0.5 miles of 85 lb.)	$ 406,560
Joints, 100 lb. S.H. (270/mile x 8.4 miles) @ $10	22,680
Bolts and Nut Locks, New (1,080/mile x 8.4 miles) @ $2.00	18,144
Tie Plates, S.H. (6,000/mile x 8.4 miles) @ $2.75	138,600
Spikes, New (12,000/mile x 8.4 miles) @ $0.36	36,288
Rail Anchors, New (3,240/mile x 8.4 miles) @ $1.15	31,298
Crossties, New (700/mile x 8.4 miles) @ $17	99,960
Ballast, (700 tons/mile x 8.4 miles) @ $3.75	22,050
Unload Material, 8.4 miles @ $2,800	23,520
Lay Rail, 8.4 miles @ $15,000	126,000
Timber and Surface, 8.4 miles @ $7,000	58,800
Work Road Crossings, 6 @ $2,000	12,000
Change out defective 85 lb. rails with material released from 100 lb. rail change, 5 days @ $800	4,000
Rail Anchors, New, 85 lb., (1,920/mile x 24.5 miles) @ $1.15	54,096
Apply Anchors, 24.5 miles @ $800	19,600
Subtotal	$ 1,073,596
Less Value of Material Released	- 78,400
Total Rehabilitation Cost	$ 995,196

SOURCE: Wilbur Smith and Associates.

Effects of Abandonment

Railroad - This line had a considerable volume of lumber traffic in 1980, but more current information suggests that the level has decreased due to the economy. Since the line is estimated to be unprofitable at the 1980 level, an abandonment now would save the carrier even more. However, since the line is not identified for abandonment by the carrier, this possibility is not expected.

Rail Users - Without this branch line, the rail users would likely use alternate rail stations on the main line at an incremental cost of approximately $200,000 annually.

Highways/Bridges - Table 5-7.7 summarizes the reconstruction and rehabilitation needs for principal highways in the area which may be affected by line closure. These estimates are for existing needs which may be accelerated if significantly more truck traffic were to be placed on the area highways. It is estimated that an abandonment would generate approximately 6 additional truck trips daily. Based on information obtained in the user survey this traffic would be most felt on U.S. 93 and would leave the total percent truck on this facility approximately the same.

Energy - Since alternate stations may be used if this line were abandoned, the net fuel change is estimated to be 4,000 fewer gallons consumed per year. Major consumption changes are not expected because short haul trucks and branch line trains have similar fuel efficiencies per ton.

Alternatives Evaluated

As a light density line not potentially subject to abandonment, the Dixon to Polson branch is eligible for rehabilitation as summarized in Tables 5-7.8 and 5-7.9 and discussed below:

Rehabilitation - The project cost of this alternative is approximately $995,000. However, the railroad cost of continued service is higher than the shipper cost of lost service. The resultant benefit/cost ratio is 0.36.

Conclusions

The traffic on this line is a lower level than previous years due to the state of the construction industry. However, since there are a significant number of shippers that might be affected by an abandonment, it is recommended that a rehabilitation project be considered according to its ranking in terms of the project net present value and benefit/cost ratio.

TABLE 5-7.7
AREA HIGHWAY AND BRIDGE NEEDS
Dixon To Polson

ROUTE	FROM	TO	LENGTH	ROADWAY NEEDS ($1000)	BRIDGE NEEDS ($1000)	AVERAGE COST PER MILE ($1000)
FAP 5	FAP 6	Polson	33.4	$ 2,571	$ 1,564	124
FAP 6	FAS 212	FAP 5	6.8	175	279	67
FAS 212	FAP 6	FAP 5	17.6	841	0	48

SOURCE: Montana Department of Highways
Morrison-Maierle, Inc.

TABLE 5-7.8
DISTRIBUTION OF BENEFITS
OF ALTERNATIVE PROJECTS
Dixon to Polson

BENEFIT TYPE	DESCRIPTION	ESTIMATED BENEFIT
	Rehabilitation Alternative	
Railroad	Annual cost savings on-branch	$ - 553,422
	Annual cost savings off-branch	0
Truck/User	Annual line haul and handling cost	206,784
Other	Net salvage value of rehabilitation materials	454,982

Note: Negative value indicates disbenefit to affected party.

SOURCE: Wilbur Smith and Associates.

TABLE 5-7.9
BENEFIT-COST ANALYSIS
OF ALTERNATIVE PROJECTS
Dixon to Polson

ALTERNATIVE PROJECT	PROJECT COST	PRESENT VALUE(1) Benefit	Cost (000's)	Net	BENEFIT/COST RATIO
Rehabilitation	$995.2	$1,857.2	$5,110.1	$-3,252.9	0.36

(1) Discount rate - 4 percent.
Project life - 10 years.

SOURCE: Wilbur Smith and Associates.

DRUMMOND TO PHILIPSBURG
Burlington Northern Railroad

This branch line is located in Granite County and extends south from the BN main line at Drummond to Philipsburg as shown in Figure 5-8. The branch line is approximately 26 miles long, and a 5-mile spur leads from the branch to an abandoned phosphate mine. Traffic nearly disappeared after one shipper closed, and the line is now out of service due to a derailment, which damaged the track. Finally, the spur has been officially abandoned by the ICC.

The status and issues surrounding this are as follows:

- Category I which means the line may be abandoned within 3 years.
- The major shipper, a woodyard, has closed.
- Metallic ores have been shipped on the line but are now being trucked to East Helena; rail distance is approximately 100 miles and is considered to be a short haul by rail.
- Elephant Spur to abandoned phosphate mine had not been used since mine closed prior to 1976; company estimates 10 - 20 years before mine may be re-opened (after higher grade ores are extracted from other locations); spur has now been abandoned but the track is in place.

Rail Use

The volume of traffic on this branch is listed in Table 5-8.1 which indicates that the line generated 86 carloads in 1980. Since that time, however, the principal shipper has gone out of business, and another user has also closed. In addition, the line is now out of service because of a derailment near the main line at Drummond. Table 5-8.2 lists the former rail users.

TABLE 5-8.1
RAILROAD USE STATISTICS - 1980
Drummond to Philipsburg

STATION	CARLOADS Number	CARLOADS Percent	TONS Number	TONS Percent	COMMODITY
			Originating		
Philipsburg	78	90.7	3,488	89.6	Lumber & Wood Products
	4	4.7	179	4.6	Metallic Ore
			Terminating		
Hall	4	4.7	226	5.8	Chemicals
Total Traffic	86	100.0	3,893	100.0	

1980 Statistical Summary

Length: 26.3 miles
Million Gross Ton-Miles Per Mile: 0.005
Carloads Per Week: 1.65
Carloads Per Mile: 3.27
Revenue: $43,334

Traffice Volume History

1976 - 299
1977 - 150
1978 - 190
1979 - 72
1980 - 86

SOURCE: Burlington Northern Railroad
Montana Department of Commerce

TABLE 5-8.2
RAILROAD USERS
Drummond to Philipsburg

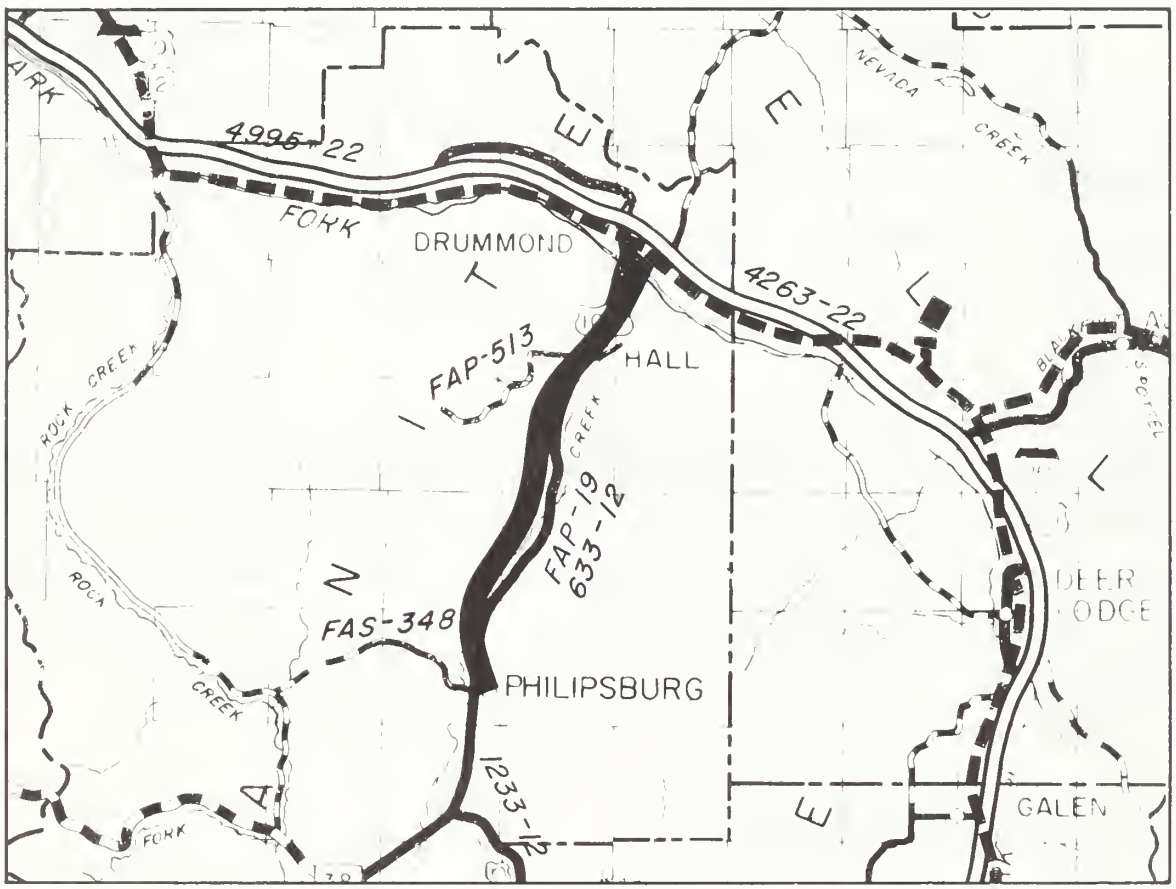
NAME	STATION	SIDING(1)	COMMODITY
Hogan's Ranch Supply	Hall	T	Chemicals
Chuck Crabtree	Philipsburg	P	Lumber & Wood Product
Black Pine Mine	Philipsburg	P	Metallic Ore

(1) P - Private or leased siding on premises.
T - Team trach

SOURCE: Burlington Northern Railroad
Montana Department of Commerce

DRUMMOND - PHILIPSBURG

RAILROAD : BURLINGTON NORTHERN
LENGTH : 26.2 MILES
COUNTIES : GRANITE
STATUS : POTENTIAL ABANDONMENT - CATEGORY I



0 10 20 30

MILES

LEGEND

SUBJECT LINE
OTHER LINES IN THIS REPORT
LINES PREVIOUSLY ANALYZED
ALL OTHER LINES
325-12 1981 ADT - % TRUCK

FIGURE 5-8

Rail Service

No service is provided now that the line has been damaged from a derailment. Prior to that time the line was served as needed at a maximum speed of 30 mph. The line connects with the BN's southern main line which runs from Mossmain to Sandpoint, ID.

The estimated cost of transporting the 88 carloads in 1980 is presented in Table 5-8.3. The revenues were only $43,000 and the operating costs were $189,000. If the opportunity cost on the track and right-of-way is included, the line lost $285,841 that year. At the time of this report the line had no revenue.

Highways

The Drummond to Philipsburg line is paralleled by Federal Aid Primary Highway 19. FAP 19 also provides a route from Philipsburg to Anaconda and between I-90 and the BN main line. Traffic on FAP 19 varies from 638 to 1,233 vehicles per day with 12 percent truck traffic. Locations and traffic volumes of area highways are shown on Figure 5-8. The distance to Drummond, the closest alternative station is 31 miles as listed in Table 5-8.4.

Rail Inventory and Condition

Since there are two distinct lines between Drummond and Philipsburg, the inventory has been divided into two tables.

Drummond to Philipsburg - The main portion of the branch is composed of medium weight rail which is in fair condition as summarized in Table 5-8.5. A short segment near the former Milwaukee Railroad at-grade crossing has been removed after a derailment. In general the segment as far as the former Elephant Spur is in better condition including ties and anchors. Finally, the roadbed has scattered locations of poor soil condition. This line was rated as 263,000 lbs. gross weight in the 1981 issue of Railway Line Clearances, however, it is shown as 220,000 lbs. in the BN Timetable with prior clearance required for heavier cars.

TABLE 5-8.3
ESTIMATED REVENUES AND COSTS
Drummond to Philipsburg

REVENUES ATTRIBUTABLE	YEAR 1980
1. Freight Originated and/or Terminated on Branch	$ 43,334
AVOIDABLE COSTS	
2. On-Branch Costs (Lines 2a through 2c)	$ 189,143
a. Maintenance of Way and Structures (Normalized)	169,398
b. Transportation	13,809
c. Freight Car Costs	5,936
3. Off-Branch Costs	$ 20,000
4. Total Avoidable Costs (Line 1 plus Line 3)	$209,143
5. Avoidable Loss from Operations (Line 1 minus Line 4)	165,809
6. Net Liquidation (Line 6a plus Line 6b)	992,000
a. Materials	866,000
b. Land	126,000
7. Rate of Return	12.1%
8. Opportunity Cost Foregone (Line 6 times Line 7)	120,032
9. Total Avoidable Loss (Line 5 plus Line 8)	$ 285,841

SOURCE: Wilbur Smith and Associates

TABLE 5-8.4
DISTANCE TO SELECTED RAILROAD STATIONS
Drummond to Philipsburg

TOWN	ALTERNATIVE RAIL STATION	RAILROAD	ROAD DISTANCE
Philipsburg	Drummond	BN	26

SOURCE: Wilbur Smith and Associates
Morrison-Maierle, Inc.

TABLE 5-8.5
LINE FACILITIES CONDITION
Drummond to Philipsburg

Mileposts -	0.0 to 26.0
Rail -	25.7 miles of 90 lb rail, 0.3 miles of 100 lb rail which includes a segment of 100 lb. through the short turnout for the Elephant Spur at MP 10.3; the rail is generally in fair condition, a few chipped ends; approximately 240 feet of track removed vicinity MP 0.6 where stored cars derailed at derailer for former at-grade crossing of C.M.St.P. & P. and the track is not yet replaced; 24-inch 4-hole joint, some with quarter cracks in areas of poor soil.
Ties -	Treated mixed hardwoods and softwoods generally in fair condition; tie condition better between Drummond, MP 0.0, and Elephant Spur switch, MP 10.3, than between Elephant Spur and Philipsburg, MP 26.00.
Tie Plates and Rail Anchors -	Full plated with single shoulder tie plates, double spiked on tighter curves; tangent portion with many small 2-hole plates; varying numbers of rail anchors; the segment between MP 0.0 and MP 10.3 (Elephant Spur) has good anchor pattern (12 anchors per 33 ft. rail) and is adequate to resist rail movement; the segment between MP 10.3 and Philipsburg is not adequately anchored and there is considerable evidence of rail running and need to respace skewed ties and existing anchors when additional anchors are applied.
Ballast -	Rock chips or fines (screening) and cinders over dirt; heavier ballast section above MP 10.3; ballast fouled in scattered areas of poor sub-grade throughout line; the heads of ties are empty at scattered locations, at a few locations the ballast has washed out beneath the ties south of Maxville (MP 15.2)
Bridges -	Nine (9) bridges totalling approximately 643 L.F., which includes one (1) 155 L.F. steel thru truss span at MP 0.1
Road Crossings -	Nine (9), four (4) paved, five (5) unpaved.
Roadbed/ Ditching -	Roadbed width varies but generally narrow; some scattered locations where roadbed repairs required due to erosion or where worn down by motor bikes; roadbed low at locations where bridges may have been filled; scattered locations of poor sub-grade creating poor surface and alignment; no side drainage problems except at some points of expansive soil.

TABLE 5-8.5 (Continued)

Vegetation - Track and roadbed generally clear; some scattered locations of light weeds and grass in track; right-of-way vegetation low and controlled.

Timetable Speed - 30 mph, (track now out of service)

Restriction - 220,000 lbs maximum allowable gross weight

Net Liquidation - $866,000 (materials), $126,000 (land).

SOURCE: Wilbur Smith and Associates
Burlington Northern Railroad

TABLE 5-8.6
LINE FACILITIES CONDITION
Elephant Spur

Milepost - 0.0 to 5.2

Rail - Approximately 5.0 miles of 131 lb. rail and 0.2 miles of 100 lb. rail; some of 131 lb. rail worn but adequate for spur; 24-inch 4-hole joints.

Ties - Treated mixed hardwoods generally in good condition.

Tie Plates - and Rail Anchors - Fully plated with double shoulder plates; well anchored, 16 anchors per 39 ft. rail; no evidence of rail running on grade.

Ballast - Crushed rock over dirt, generally good.

Bridges - None.

Road - Crossings - Two (2), one (1) paved, one (1) unpaved.

Roadbed/ Ditching - Roadbed width narrow in places but generally adequate; some light settlement noted at a few scattered locations; no drainage problems noted.

Vegetation - Track generally clear except within the plant area at end of track where weeds have grown up in track and roadbed.

Timetable Speed - 25 mph - Elephant and MP 5.12 - Ascending
20 mph - MP 5.12 and Elephant - Descending
Line now abandoned.

Restrictions - 220,000 lbs. maximum allowable gross weight.

Net Liquidation - $472,000 (materials), $13,000 (land).

SOURCE: Wilbur Smith and Associates
Burlington Northern Railroad

Elephant Spur - In contrast to the Philipsburg branch line, the Elephant Spur is in good condition with good ties and heavy rail which is well anchored. Table 5-8.6 lists additional details.

Rehabilitation Costs

The Philispburg line rehabilitation needs are listed in Table 5-8.7. A total of $506,111 is needed for crossties and related work, and another $6,500 is needed to repair the short segment that was damaged by the derailment. The Elephant Spur does not need any rehabilitation.

Effects of Abandonment

Railroad - Since the traffic on this line had declined even before the track went out of service, BN had incurred both operating losses and opportunity costs of relatively unproductive assets. Therefore, abandonment would eliminate these costs which in 1980 are estimated at $285,841. Abandonment could cause a major future expense for any possible near future (next 1 to 5 years) extraction of heavy minerals. Extraction potentials beyond this time frame would most likely be prohibitive in terms of unproductive railroad assets to justify retention of this line.

Rail Users - The traffic on this line had nearly disappeared with the closure of two businesses. Therefore, there are no user impacts of abandonment. However the Department's survey did reveal various potentials associated with mining activity. At present, however, the only active mines are using trucks for relatively short haul movements. These companies did not utilize the branch line prior to the derailment. The mine on the Elephant Spur has been closed for several years and management does not anticipate a re-opening for 10 to 15 years. The spur has now been abandoned by the railroad.

Highways/Bridges. Rehabilitation and reconstruction needs are summarized in Table 5-8.8 for Federal Aid Primary Highway 19. These needs are those presently anticipated by the Montana Department of Highways. Since in the short term there would be no new traffic imposed on the highway system if the line were abandoned, then these needs are not an impact of the potential action.

TABLE 5-8.7
REHABILITATION COST ESTIMATE
Drummond to Philipsburg

COST ITEM	COST
Ditch and Repair Roadbed, 3 miles @ $1,000	$ 3,000
Joints, 90 lb. S.H. (32/mile x 15.7 miles) @ $6.00	3,014
Bolts and Nut Locks, New (128/mile x 15.7 miles) @ $1.75	3,517
Crossties, New (600/mile x 15.7 miles) @ $17.00	160,140
Spikes, New (2,400/mile x 15.7 miles) @ $0.36	13,565
Rail Anchors, New (2,240/mile x 15.7 miles) @ $1.15	40,443
Ballast, (1,000 tons/mile x 15.7 miles) @ $3.75	58,875
Ballast, (700 tons/miles x 10.3 miles) @ $3.75	27,038
Unload Material, 15.7 miles @ $1,800	28,260
Unload Material, 10.3 miles @ $1,500	15,450
Timber and Surface, 15.7 miles @ $6,000	94,200
Surface and Line, 10.3 miles @ $2,500	25,750
Install Joints and Anchors, 15.7 miles @ $1,000	15,700
Work Road Crossings, 9 @ $2,000	18,000
Subtotal	$ 506,952
Less Value of Material Released	- 840
Total Rehabilitation Cost	$ 506,111
Restore 240 T.F. at Derailment Site:	
Crossties, New, 137 @ $17.00	$ 2,329
Tie Plates, S.H. 274 @ $1.25	343
Rail, 90 lb. Relay, 1.2 tons @ $1.75	210
Joints, S.H., 14 @ $6.00	84
Bolts and Nut Locks, New, 56 @ $1.75	98
Spikes, New, 548 @ $0.36	197
Ballast, 160 tons @ $3.60	576
Track Laying and Surfacing, 240 T.F. @ $11	2,640
Restoration of Track	$ 6,477
Total Rehabilitation and Service Restoration Cost	$ 512,587

SOURCE: Wilbur Smith and Associates.

TABLE 5-8.8
AREA HIGHWAY AND BRIDGE NEEDS
Drummond to Philipsburg

ROUTE	FROM	TO	LENGTH	ROADWAY NEEDS ($1000)	BRIDGE NEEDS $(1000)	AVERAGE COST PER MILE ($100
FAP 19	Drummond	Philipsburg	25.8	$ 2,001	$ 415	$ 94
	Philipsburg	I-90	38.2	2,609	0	68

SOURCE: Montana Department of Highways
Morrison-Maierle, Inc.

Alternatives Evaluated

Tables 5-8.9 and 5-8.10 summarize the analysis of alternative projects under this program.

Rehabilitation, Drummond to Philipsburg - An earlier table indicated that $512,588 is needed to restore service and to place the line in a stable operating condition. However, there was little traffic prior to the derailment, and this alternative has few direct benefits. If it is assumed that traffic were restored to a higher level such as the 299 cars in 1976, the benefit/cost ratio is still quite low.

Acquisition, Drummond to Philipsburg - The estimated net liquidation value of the branch is $1,181,000 but, as discussed above, there are no benefits from the latest traffic year. At the 1976 traffic levels the benefit/cost ratio is still only 0.32.

Acquisition/Rehabilitation, Drummond to Philipsburg - A similar result occurs if the above alternatives are considered together.

Acquisition, Drummond to Elephant Spur - This alternative assumes that the Elephant Spur mine would be reopened in the future and that the rail access would be preserved until that time. (This alternative is similar to

TABLE 5-8.9
DISTRIBUTION OF BENEFITS
OF ALTERNATIVE PROJECTS
Drummond to Philipsburg
1976 Traffic Level

BENEFIT TYPE	DESCRIPTION	ESTIMATED BENEFIT
	Rehabilitation Alternative	
Railroad	Annual cost savings on-branch	$ - 358,161
	Annual cost savings off-branch	0
Truck/User	Annual line haul and handling cost	65,677
Other	Net salvage value of rehabilitation materials	15,651
	Acquisition Alternative	
Railroad/ Operator	Annual cost savings on-branch	$ - 358,161
	Annual cost savings off-branch	0
Truck/User	Annual line haul and handling cost	65,677
Other	Liquidation value of land	126,000
	Net salvage value of track materials	866,000
	Acquisition/Rehabilitation Alternative	
Railroad/ Operator	Annual cost savings on-branch	$ - 358,161
	Annual cost savings off-branch	0
Truck/User	Annual line haul and handling cost	65,677
Other	Liquidation value of land	126,000
	Net salvage value of track materials	881,651
	Acquisition - Drummond/Elephant Spur Alternative (1)	
Railroad	Annual cost savings on-branch	$ - 523,224
	Annual cost savings off-branch	0
Truck/User	Annual line haul and handling cost	481,568
Other	Liquidation value of land	43,000
	Net salvage value of track materials	761,000
	Cost of loading facility	250,000

(1) Mine presently closed and Elephant Spur abandoned; mine assumed open at 2,200 cars for this analysis.

Note: Negative value indicates disbenefit to affected party.

SOURCE: Wilbur Smith and Associates.

TABLE 5-8.10
BENEFIT-COST ANALYSIS
OF ALTERNATIVE PROJECTS
Drummond to Philipsburg

ALTERNATIVE PROJECT	PROJECT COST	PRESENT VALUE(1) Benefit	Cost (000's)	Net	BENEFIT/COST RATIO
Rehabilitation (2)	$512.6	$499.3	$3,175.6	$-2,676.3	0.16
Acquisition (2)	992.0	1,185.4	3,655.0	-2,469.7	0.32
Acquisition/Rehabilitation(2)	1,504.6	1,196.3	4,167.6	-2,971.3	0.29
Acquisition-Drummond/ Elephant Spur (3)	804.0	4,321.1	4,694.3	- 373.2	0.92

(1) Discount rate - 4 percent.
Project life - 10 years.
(2) 1976 traffic level.
(3) 2,200 carload potential.

SOURCE: Wilbur Smith and Associates.

that discussed later for the Phospate Spur mine which is owned by the same company that owns the Elephant mine.) For this analysis it is assumed that the mine would reopen and the shipper would have to truck to a site at Drummond if the spur were abandoned. A loading facility, estimated by the owner to cost $250,000, would have to be constructed at Drummond. If 2,200 carloads of traffic were then generated, the benefits of such action on a 10-year present value basis are $4.3 million, and the present value of the costs is $4.7 million. With an acquisition cost of $804,000, the benefit/cost ratio is 0.92.

Conclusions

This line had a very low traffic level even before a derailment forced the line out of service. Therefore, potential traffic would be the only reason to restore service. Although there is active mining in the area, little moved by rail over this line prior to the derailment. This mining cannot be considered as a strong potential for future rail use without

further market development. Rail banking of the segment that would serve the Elephant mine is reasonable only if the mine would reopen within a few years. According to the Department's survey, this action may not occur for 10 to 15 years. For this reason, even this alternative appears to be too speculative for the immediate use of public funds.

DURANT TO BROWN
Butte, Anaconda & Pacific Railway

The Butte, Anaconda and Pacific Railway (BAP) is the only short line railroad operating in the State. The railroad owns approximately 115 miles of track, most of which is yard track to provide access to mines in Butte. The seqment which is the subject of this report runs from Durant to Anaconda and Brown. Figure 5-9 identifies the location of this segment.

The status and issues of this railroad are as follows:

- Light density line which has not been identified for possible abandonment.
- Major rail customer was Anaconda Company until much of Anaconda's operation was closed.
- Railroad has other customers which yield a relatively small number of carloads.
- Most of the line inspected for this report is in good condition.

Rail Use

Information from the BAP indicates that this railroad originated and terminated over 15,000 carloads and 1.4 million tons of traffic in 1981. Most of this traffic was slurry concentrate and limestone to Anaconda and dried concentrate from Anaconda. Other traffic ranges from 1 car per week to 2 cars per year. According to the railroad, there are 23 active customers besides the Anaconda Company.

Rail Service

This railroad originates and terminates traffic which is transferred to or from the Burlington Northern or the Union Pacific. Little if any traffic currently moves on the segment to Anaconda and Brown.

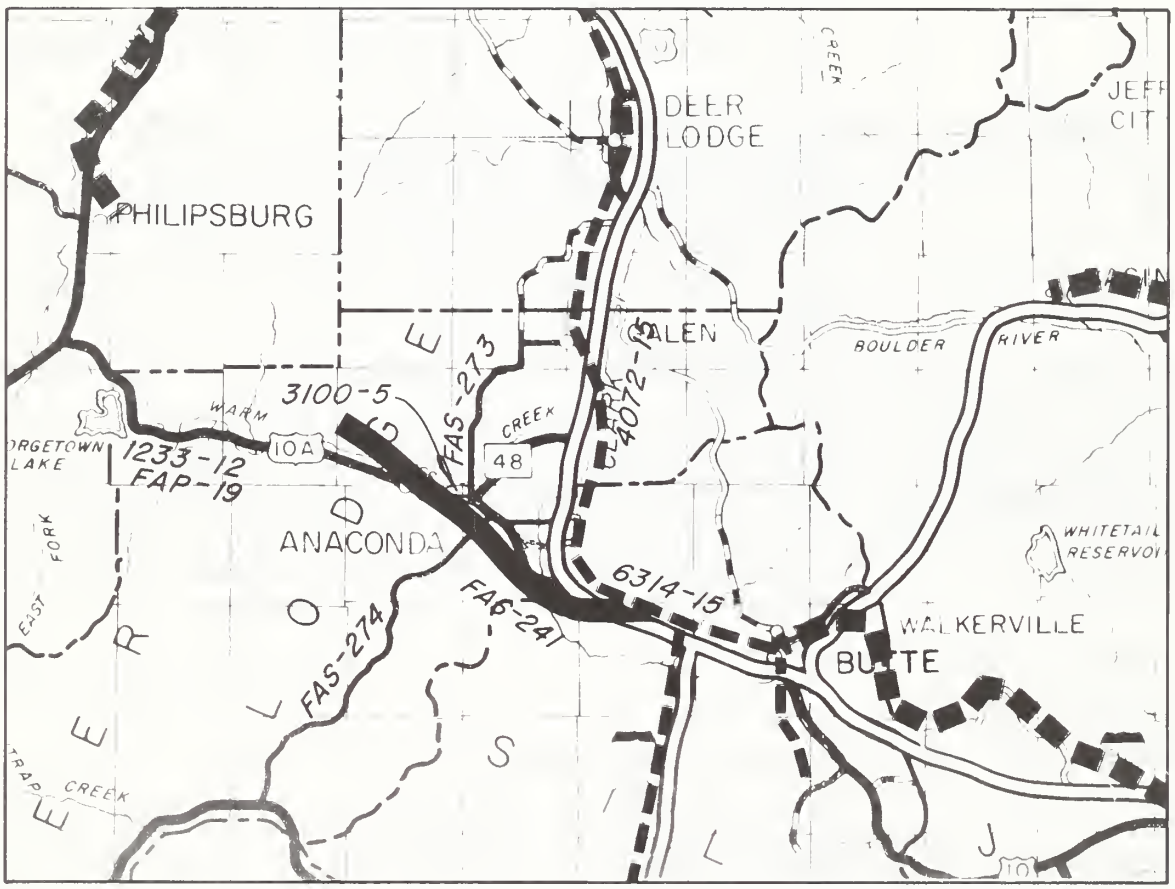
TABLE 5-9.1
LINE FACILITIES CONDITION
Durant to Anaconda

Milepost	-	13.7 to 25.7
Rail	-	12.0 miles of 115 lb. rail generally in good condition with good surface and line; some evidence of flaking or shelling of gage corner on high rail on some curves; 36-inch 6-hole joints with "Huck" fasteners.
Ties	-	Treated mixed hardwoods, generally in good condition, some ties having been installed within last year.
Tie Plates and Rail Anchors	-	Fully plated with double shoulder tie plates; varying numbers of anchors generally 16 per 39 ft. rail, however, segments noted with anchors only against direction of heavier traffic.
Ballast	-	Cinders and slags, some crushed rock; good well drained ballast section.
Bridges	-	One bridge (none observed).
Road Crossings	-	Five (5) paved crossings.
Roadbed/Ditching	-	Generally wide, well drained roadbed; no drainage problems noted.
Vegetation	-	Track and roadbed clean, growth on right-of-way either cut back or controlled.
Timetable Speed	-	25 mph.
Weight Restrictions	-	263,000 lbs. gross weight
Net Liquidation	-	$1,083,000 (materials), $58,000 (land).

SOURCES: Wilbur Smith and Associates
Railway Line Clearances, Vol. 191, 1981
The Official Railway Guide, Nov./Dec. 1981

DURANT - BROWN

RAILROAD : BUTTE, ANACONDA & PACIFIC
LENGTH : 18.2 MILES
COUNTIES : SILVER BOW, DEER LODGE
STATUS : LIGHT DENSITY LINE



LEGEND

- SUBJECT LINE
- OTHER LINES IN THIS REPORT
- LINES PREVIOUSLY ANALYZED
- ALL OTHER LINES
- 325 - 12 1981 ADT - % TRUCK

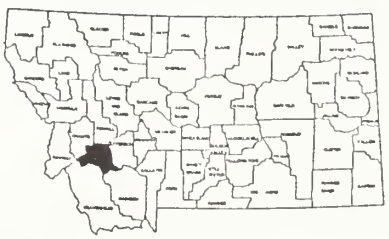


FIGURE 5-9

TABLE 5-9.2
LINE FACILITIES CONDITION
Anaconda to Brown

Milepost	-	0.0 to 6.2
Rail	-	6.2 miles of 85 lb. rail except for segments of 100 lb. and 115 lb. through crossings in Anaconda; 85 lb. worn and heavily pitted; 36-inch 6-hole joints.
Ties	-	Treated mixed hardwoods, generally in poor condition.
Tie Plates and Rail Anchors	-	Fully plated with single shoulder tie plates; most too small to effectively distribute load to ties, all considered as scrap; very few anchors, generally for direction of heavier traffic moving to Anaconda.
Ballast	-	Light cover of small crushed stone over cinders and dirt.
Bridges	-	None observed.
Road Crossings	-	Seven (7), four (4) paved, three (3) unpaved.
Roadbed/Ditching	-	Good well drained roadbed; no drainage problem noted.
Vegetation	-	Track within Anaconda clean; from Anaconda to Brown weeds growing in track and along roadbed.
Timetable Speed	-	15 mph.
Weight Restrictions	-	200,000 lbs. gross weight
Net Liquidation	-	$66,700 (materials), $23,000 (land).

SOURCES: Wilbur Smith and Associates
Railway Line Clearances, Vol. 191, 1981
The Official Railway Guide, Nov./Dec. 1981

Highways

The Durant to Brown line is paralleled by Federal Aid Primary Highway 19 with traffic volumes varying from 1,233 to 3,100 vehicles per day. Truck traffic is relatively low. Area highways and traffic volumes are illustrated on Figure 5-9.

Rail Inventory and Condition

An inspection of the Durant to Brown portion of the BAP revealed two distinctive patterns which are summarized in Tables 5-9.1 and 5-9.2. Between Durant and Anaconda the line is in good condition with heavy rail, good surface and line, and ties in good condition. This segment is also fully plated and has an adequate number of effective anchors. In contrast, the Anaconda to Brown segment is generally composed of heavily pitted lightweight rail and ties in poor condition. The tie plates on this line are too small for effective load distribution, and there are few rail anchors. This segment between Anaconda and Brown has a 200,000 pound gross weight restriction.

Rehabilitation Costs

The condition of the two segments is also reflected in the estimated rehabilitation costs. The Durant to Anaconda segment is in good condition and already operates at 25 mph and at a standard weight limit; this segment does not need any rehabilitation. The Anaconda to Brown segment, however, does need rehabilitation as presented in Table 5-9.3. Nearly $700,000 is needed in order to raise the weight limit to 263,000 pounds and the speed limit to 25 mph. Much of the cost is due to rail replacement but another major item is crossties.

Conclusions

The line between Durant and Brown is technically eligible for rehabilitation assistance under this program since the line has a light traffic

density. However, the Durant/Anaconda portion is in good condition and needs no rehabilitation. The Anaconda/Brown portions needs rehabilitation but has no traffic. Therefore, there are no benefits to this potential project. It is recommended that this line be ranked low for project funding purposes under this program.

TABLE 5-9.3
REHABILITATION COST ESTIMATE
Anaconda to Brown

COST ITEM		COST
Rail, 100 lb. Relay (176 tons/mile x 6.2 miles) @ $275	$	300,080
Joints, 100 lb. S.H. (270/mile x 6.2 miles) @ $10		16,740
Bolts and Nut Locks, (1,080/mile x 6.2 miles) @ $2.00		13,392
Tie Plates, S.H. (6,000/mile x 6.2 miles) @ $2.75		102,300
Spikes, New (12,000/mile x 6.2 miles) @ $0.36		26,784
Rail Anchors, New (3,240/mile x 6.2 miles) @ $1.15		23,101
Crossties, New (700/mile x 6.2 miles) @ $17.00		73,780
Ballast, (700 tons/mile x 6.2 miles) $3.75		16,275
Turnouts, #9, 100 lb. S.H., 2 @ $10,000		20,000
Unload Material, 6.2 miles @ $2,800		17,360
Lay Rail, 6.2 miles @ $15,000		93,000
Timber and Surface, 6.2 miles @ $6,000		37,200
Install Turnouts, 2 @ $3,000		6,000
Work Road Crossings 7 @ $2,000		14,000
Subtotal	$	760,012
Less Value of Material Released	-	66,411
Total Rehabilitation Cost	$	693,601

SOURCE: Wilbur Smith and Associates.

RRPLN2/B

FROMBERG TO BRIDGER
Burlington Northern Railroad

This branch line is approximately 6 miles long and extends from Fromberg to Bridger in Carbon County. The branch is generally parallel to the BN's main line from Laurel to Casper, Wyoming. The principal traffic on the branch is farm products and chemicals. Figure 5-10 illustrates this line.

The status and issues of this branch line are as follows:

- Category I which indicates a potential abandonment within 3 years.
- Bridger branch line station is approximately 1 mile east of Bridger main line station.
- Line indirectly involved in abandonment of Silesia to Red Lodge branch; coal mine near Red Lodge was to use Bridger/Fromberg branch if Red Lodge line was abandoned; mine never opened and Red Lodge line abandoned; mine reportedly has high quality coal and would have to use East Bridger station if subject line were abandoned.

Rail Use

As shown in Table 5-10.1, very little traffic moves over the Fromberg/Bridger branch. Of the 44 total carloads in 1980, 22 were farm products and another 17 were fertilizer. Traffic has declined in recent years with the major loss coming from the reduction of barley shipments from the branch. Table 5-10.2 lists the names of the most recent rail users on this line.

Rail Service

This branch is served as required, but information from the railroad indicates that there is little service provided due to the lack of demand. The timetable speed is 25 mph and the line operates under a weight restriction which is capable of handling fully loaded covered hoppers.

TABLE 5-10.1
RAILROAD USE STATISTICS - 1980
Fromberg to Bridger

STATION	CARLOADS Number	CARLOADS Percent	Tons Number	Tons Percent	COMMODITY
			Originating		
Bridger	22	50.0	1,442	45.4	Farm Products
			Terminating		
Bridger	17	38.6	1,532	48.3	Chemicals
	3	6.8	120	3.8	Nonmetallic Minerals
	1	2.3	40	1.3	Lumber & Wood Products
	1	2.3	40	1.3	Fabricated Metal Produc
Total Traffic	44	100.0	3,174	100.0	

1980 Statistical Summary

Length: 6.1 miles
Million Gross Ton-Miles Per Miles 0.001
Carloads Per Week: 0.8
Carloads Per Mile: 7.2
Revenue: $59,092

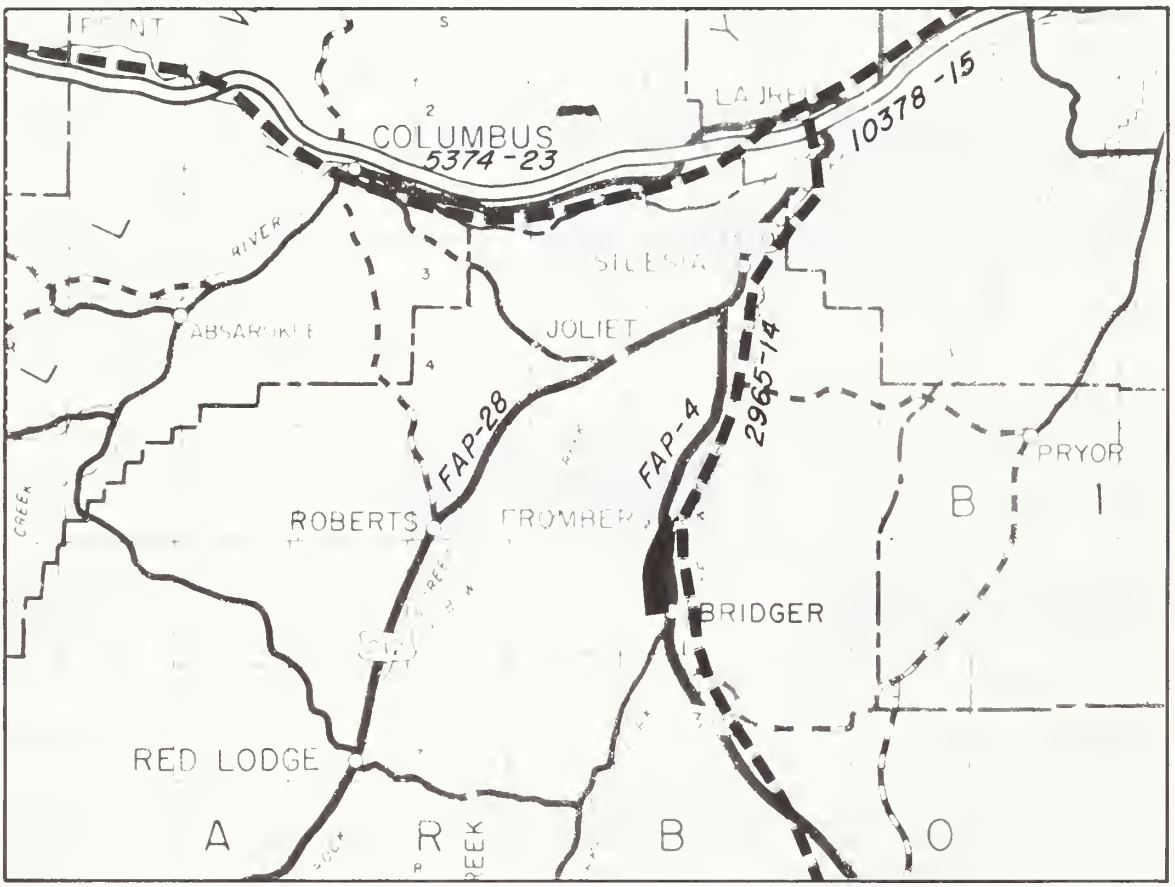
Traffic Volume History

1976	194
1977	138
1978	23
1979	24
1980	44

SOURCE: Burlington Northern Railroad
Montana Department of Commerce

FROMBERG - BRIDGER

RAILROAD : BURLINGTON NORTHERN
LENGTH : 6.1 MILES
COUNTIES : CARBON
STATUS : POTENTIAL ABANDONMENT - CATEGORY I



0 10 20 30

MILES

LEGEND

- SUBJECT LINE
- OTHER LINES IN THIS REPORT
- LINES PREVIOUSLY ANALYZED
- ALL OTHER LINES

325-12 1981 ADT - % TRUCK

FIGURE 5-10

TABLE 5-10.2
RAILROAD USERS
Fromberg to Bridger

NAME	STATION	SIDING(1)	COMMODITY
E.H. Walrath Co.	Bridger	P	Farm Products, Chemicals
Montana Power	Bridger	T	Lumber & Wood Products Fabricated Metal Products
Kapar	Bridger	?	Nonmetallic Minerals

(1) P - Private or leased siding or premises
T - Team track

SOURCE: Burlington Northern Railroad
Montana Department of Commerce

TABLE 5-10.3
ESTIMATED REVENUES AND COSTS
Fromberg to Bridger

REVENUES ATTRIBUTABLE	YEAR 1980
1. Freight Originated and/or Terminated on Branch	$ 59,092
AVOIDABLE COSTS	
2. On-Branch Costs (Lines 2a through 2c)	$ 46,198
a. Maintenance of Way and Structures (Normalized)	40,199
b. Transportation	3,323
c. Freight Car Costs	2,676
3. Off-Branch Costs	28,000
4. Total Avoidable Costs (Line 2 plus Line 3)	$ 74,198
5. Avoidable Loss from Operations (Line 1 minus Line 4)	$ 15,106
6. Net Liquidation (Line 6a plus Line 6b)	190,000
a. Materials	175,000
b. Land	15,000
7. Rate of Return	12.1%
8. Opportunity Cost Foregone (Line 6 times Line 7)	22,990
9. Total Avoidable Loss (Line 5 plus Line 8)	$ 38,096

SOURCE: Wilbur Smith and Associates
Burlington Northern Railroad

The estimated annual avoidable loss from this line is approximately $38,000 as shown in Table 5-10.3. The majority of this loss is due to the required return on investment and the allowance for normalized maintenance. It is likely that actual maintenance is considerably less than the normalized value.

Highways

The Fromberg to Bridger line is paralleled by Federal Aid Secondary Highway 4 as shown on Figure 5-10. Access is provided from Bridger to a BN main line station approximately 1 mile east in East Bridger by county road. Traffic on FAP-4 was determined to be 2,965 vehicles per day based on Montana Department of Highway counts in 1981.

Rail Inventory and Condition

An inspection report for this branch line is presented in Table 5-10.4. Most of the line has medium to lightweight rail which has some battered ends and quarter cracked joints. The ties are in fair condition. There are a varying number of anchors in the track, and rail running has caused some joint ties to skew.

Rehabilitation Costs

The rail is adequate for the current volume of traffic, and it appears that the line is in need of a relatively small amount of rehabilitation to stabilize it at FRA Class 2, 25 mph. As shown in Table 5-10.5, the total estimated cost is approximately $156,000 of which the major portion would be for additional ties and timbering and surfacing.

Effects of Abandonment

Railroad - Since this line is unprofitable, abandonment would save the BN approximately $38,000 annually based on 1980 traffic levels. If the

TABLE 5-10.4
LINE FACILITIES CONDITION
Fromberg to Bridger

Mileposts	-	13.4 to 19.5
Rail	-	0.8 miles of 90 lb. rail, 5.3 miles of 85 lb. rail; a few battered rail ends noted in 90 lb. rail, 85 lb. generally has good surface; 24-inch 4-hole joints, several quarter cracked joints in 85 lb. rail segment.
Ties	-	Treated mixed hardwoods and softwoods; the condition generally fair except where joint ties damaged by rail.
Tie Plates and Rail Anchors	-	Except for a few scattered locations of 80% plates, track is fully plated with small single shoulder tie plates; the 90 lb. rail segment is well anchored, varying numbers of anchors on 85 lb. rail; rail running has skewed joint ties causing tight gauge on some curves.
Ballast	-	Dirt ballast, a few locations with either a light layer of small crushed stone or larger river bed gravel.
Bridges	-	Two (2) bridges totalling approximately 150 L.F.
Road Crossings	-	Six (6), two (2) paved, four (4) unpaved.
Roadbed/ Ditching	-	Roadbed width adequate, no subgrade or drainage problems noted.
Vegetation	-	Grass in track, evidence that track recently sprayed with weed control chemical, low weeds on shoulders of roadbed, right-of-way growth generally controlled.

Timetable Speed - 25 mph

Weight Restriction - 263,000 lbs. gross weight

Net Liquidation - $175,000 (materials), $15,000 (land)

SOURCE: Wilbur Smith and Associates
Burlington Northern Railroad
Railway Line Clearances Vol. 191, 1981

TABLE 5-10.5
REHABILITATION COST ESTIMATE
Fromberg to Bridger

COST ITEM	COST
Joints, 85 lb., S.H. (32/mile x 5.3 miles) @ $5.00	$ 848
Bolts and Nut Locks (128/mile x 5.3 miles) @ $1.60	1,085
Rail Anchors, New (1,920/mile x 5.3 miles) @ $1.15	11,702
Crossties, New (600/mile x 5.3 miles) @ $17.00	54,060
Tie Plates, S.H. (1,200/mile x 5.3 miles) @ $1.50	9,540
Spikes, New (2,400/mile x 5.3 miles) @ $0.36	4,579
Ballast (700 tons/mile x 5.3 miles) @ $3.75	13,913
Unload Material, 5.3 miles @ $1,500	7,950
Timber and Surface, 5.3 miles @ $6,600	34,980
Install Joints and Anchors, 5.3 miles @ $1,000	5,300
Work Road Crossings, 6 @ $2,000	12,000
Subtotal	$155,957
Less Value of Material Released	- 260
Total Rehabilitation Cost	$155,697

SOURCE: Wilbur Smith and Associates

shippers choose to use the alternate station at East Bridger, the railroad would save the on-branch costs of $146,000 and would still receive approximately the same revenue of $59,000.

Rail Users - The total impact of abandonment of this line would be relatively low because of the low traffic level and the proximity of another station one mile away. However, even though the alternate station is so close, some traffic may be diverted entirely to truck and barge. The estimated net shipper cost impact of abandonment is $14,000 per year at the 1980 traffic level. Since railroad service information for this line indicates that the line is served infrequently, much of this traffic diversion may have already occurred.

Highway/Bridges - Inspections and reports by the Montana Department of Highways indicate that Federal Aid Primary Route 4 from Fromberg to Bridger is in good condition and has no current needs for rehabilitation and/or reconstruction. Also, the Montana Department of Highways indicates that the bridge over the Clark Fork of the Yellowstone River on the county road between Bridger and East Bridger has a sufficiency rating of less than 50 which indicates the bridge is in need of replacement. Cost for replacement of the bridge is estimated to be $770,000. However, observations made at the time of the line inspection were that this bridge has now been replaced. Without this line, approximately 141 additional truck trips per year would be produced or 0.4 per day. Approximately 48 trips would be in grain trucks. The additional truck trips exclude coal traffic potential.

Energy - The additional truck trips, some of which would be long distance trips, will consume approximately 6,000 more gallons annually than under the present operation.

Alternatives Evaluated

Tables 5-10.6 and 5-10.7 summarize the analysis of several alternative projects for which this line is eligible.

Rehabilitation - If this option could prevent an abandonment, the benefit/cost ratio is only 0.29 due to the low traffic volume and the availability of alternatives to the shippers.

Acquisition - Approximately the same result occurs if the line were acquired and service were preserved in this manner.

Acquisition/Rehabilitation - This option combines the previous two; hence the cost is higher but the benefit is the similar. The benefit/cost ratio is similar.

New Construction - Under this option, the existing rail users would continue to receive rail service via a 1-mile connection to the main line in Bridger. Since the railroad would save on operating costs, the benefits of this alternative are higher. However, with the railroad construction cost at $263,000 and a bridge construction cost of $2.5 million, the benefit/cost ratio is 0.31.

Conclusions

It appears that the existing shippers have reasonable alternatives to the abandonment of this line since they are approximately 1 mile from another station. This conclusion is indicated by the low benefit/cost ratios for several alternatives. The new construction alternatives would continue service to these rail users but may serve little purpose since there has apparently been no call for rail service in several months. As for the potential traffic from the coal mine near Red Lodge, the ICC effectively prevented the abandonment of the Silesia/Red Lodge branch for 1 year in order for the mine to begin production. When the mine did not fully open, the BN re-filed for abandonment, and the ICC granted the request. If the mine eventually does open, and this branch is abandoned, then the mine will have to truck its coal one more mile to the main line station at Bridger. The cost impacts of one additional mile of trucking are likely to be small since the total truck move would be approximately 25 miles. Therefore, it is recommended that this line be ranked relatively low for project assistance purposes.

TABLE 5-10.6
DISTRIBUTION OF BENEFITS
OF ALTERNATIVE PROJECTS
Fromberg to Bridger

BENEFIT TYPE	DESCRIPTION	ESTIMATED BENEFIT
	Rehabilitation Alternative	
Railroad	Annual cost savings on-branch.	$ - 69,187
	Annual cost savings off-branch.	- 6,364
Truck/User	Annual line haul and handling cost.	24,725
Barge/User	Annual cost.	2,943
Other	Net salvage value of rehabilitation materials.	7,828
	Acquisition Alternative	
Railroad/ Operator	Annual cost savings on-branch.	$ - 69,187
	Annual cost savings off-branch.	- 6,364
Truck/User	Annual line haul and handling cost.	24,725
Barge/User	Annual cost.	2,943
Other	Liquidation value of land.	15,000
	Net salvage value of track materials.	175,000
	Acquisition/Rehabilitation Alternative	
Railroad/ Operator	Annual cost savings on-branch.	$ - 69,187
	Annual cost savings off-branch.	- 6,364
Truck/User	Annual line haul and handling cost.	24,725
Barge/User	Annual cost.	2,943
Other	Liquidation value of land.	15,000
	Net salvage value of track materials.	182,828
	New Construction Alternative	
Railroad	Annual cost savings on-branch.	$ 69,187
	Annual cost savings off-branch.	6,364
Truck/User	Annual line haul and handling cost.	24,725
Barge/User	Annual cost.	2,943
Other	Liquidation value of land.	18,000
	Net salvage value of track materials.	108,835

Note: Negative value indicates disbenefit to affected party.

SOURCE: Wilbur Smith and Associates.

TABLE 5-10.7
BENEFIT-COST ANALYSIS
OF ALTERNATIVE PROJECTS
Fromberg to Bridger

ALTERNATIVE PROJECT	PROJECT COST	PRESENT VALUE(1) Benefit	Cost (000's)	Net	BENEFIT/COST RATIO
Rehabilitation	$ 155.7	$ 211.2	$ 717.4	$ -506.2	0.29
Acquisition	190.0	339.2	751.7	-412.5	0.45
Acquisition/Rehabilitation	345.7	344.7	907.4	-562.7	0.38
New Construction	2,763.0	856.6	2,763.0	-1,906.4	0.31

(1) Discount rate - 4 percent.
Project life - 10 years.

SOURCE: Wilbur Smith and Associates.

RRPlan/A

GLENDIVE TO CIRCLE
Burlington Northern Railroad

This branch line is 53.7 miles in length and extends west from Glendive in Dawson County to Circle in McCone County. Figure 5-11 illustrates the line as well as other area railroads and highways. The line handles similar volumes of agricultural traffic (farm products and chemicals) and nonmetallic minerals. There are 3 active stations on the line.

The following is a summary of the status and issues concerning this branch line.

- Light density line which has not been identified for possible abandonment.
- 52-car grain subterminal under construction at Circle; several other area elevators now owned by Circle operation and will be satellite facilities.
- 10.5-mile segment extending west from Circle to Brockway in Category I which indicates a potential abandonment with 3 years; Brockway elevator now part of Circle operation; this segment also analyzed in this report.
- Possibility of coal-related development in Circle area has been discussed; no known definite plans.

Rail Use

The usage statistics for the Glendive/Circle branch are presented in Table 5-11.1. In 1980, the line generated 739 carloads of which 43 percent were farm products, 48 percent were nonmetallic minerals, and the remainder was chemicals and machinery. In addition, the Circle/Brockway segment contributed another 103 carloads. Several rail users were identified in the Rail User Survey as listed in Table 5-11.2.

TABLE 5-11.1
RAILROAD USE STATISTICS - 1980
Glendive to Circle

STATION	CARLOADS Number	CARLOADS Percent	Tons Number	Tons Percent	COMMODITY
			Originating		
MP 8.3	352	47.6	24,640	42.8	Nonmetallic Minerals
Lindsay	100	13.5	9,150	15.9	Farm Products
Circle	219	29.6	20,039	34.8	Farm Products
			Terminating		
Circle	30	4.1	3,000	5.2	Chemicals
	38	5.1	760	1.3	Machinery
Total Traffic	739	100.0	57,589	100.0	

1980 Statistical Summary

Length: 53.7 miles
Million Gross Ton-Miles Per Mile: 0.083
Carloads Per Week: 14.2
Carloads Per Mile: 13.8
Revenue: $1,349,000

SOURCE: Burlington Northern Railroad
Montana Department of Commerce

TABLE 5-11.2
RAILROAD USERS
Glendive to Circle

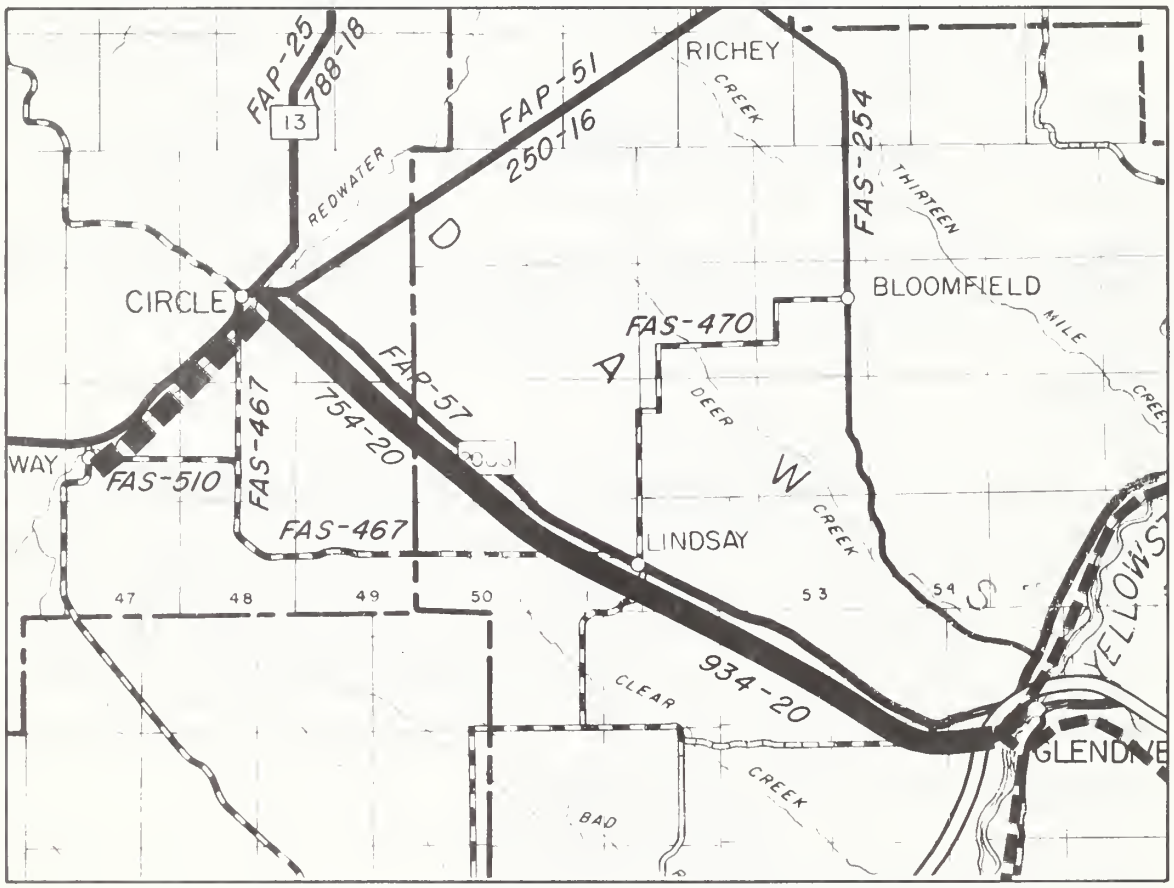
NAME	STATION	SIDING(1)	COMMODITY
Western Gravel	MP 8.3	P	Nonmetallic Minerals
Farmers Union Elevator Co.	Circle	P	Farm Products
Rolandson Implement Co.	Circle	T	Machinery
Eissinger Equipment	Circle	T	Machinery
Lund Implement	Circle	P	Machinery
Cenex Soil Service	Circle	P	Chemicals
Peavey Co. Producer Service	Circle	P	Farm Products
Farmers Union Elevator	Lindsay	P	Farm Products

(1) P - Private or leased siding or premises
T - Team track

SOURCE: Burlington Northern Railroad
Montana Department of Commerce

GLENDIVE - CIRCLE

RAILROAD : BURLINGTON NORTHERN
LENGTH : 53.7 MILES
COUNTIES : DAWSON , MC CONE
STATUS : LIGHT DENSITY LINE



0 10 20 30

MILES

LEGEND

SUBJECT LINE
OTHER LINES IN THIS REPORT
LINES PREVIOUSLY ANALYZED
ALL OTHER LINES
325 - 12 1981 ADT - % TRUCK

FIGURE 5 - 11

Rail Service

Service information was not provided by the railroad, but it is assumed that weekly service is provided to Circle. The train then makes the run to Brockway as required. This branch connects with BN's main line at Glendive.

The estimated revenues and costs for the line between Glendive and Circle (including the Brockway traffic) are presented in Table 5-11.3. In 1980 this branch received $1,735,000 in revenues and had costs of $1,663,000. Therefore the line had a profit of $72,000 that year. Included in the costs are an allowance for cyclical maintenance of way which may be higher than actual cash outlays for maintenance. Also included is the opportunity cost of the land and materials value.

Highways

Federal Aid Primary highways exist from Circle to BN main line stations at Wolf Point and Glendive and to the Richey station on the Newlon Junction-Richey line (a light density line analyzed elsewhere in this report). FAP 57 parallels the line for its entire length. ADT's on the primary highways range from 250 to 934 vehicles per day with 16 to 20 percent trucks as shown in Figure 5-11. Table 5-11.4 lists the highway distances to these other rail stations.

Rail Inventory and Condition

The details of an inspection of this branch are presented in Table 5-11.5. The entire line has medium weight rail in fair condition. The ties are in fair condition at locations that have been reworked, but additional ties are needed in other areas. There are a varying number of anchors and tie plates, but more are needed. Finally, certain locations have poor subgrade, fouled ballast, and inadequate roadbed condition.

Rehabilitation Costs

The need for rehabilitation of this line is detailed in Table 5-11.6

TABLE 5-11.3
ESTIMATED REVENUES AND COSTS
Glendive to Circle
Including Brockway Traffic

REVENUES ATTRIBUTABLE	YEAR 1980
1. Freight Originated and/or Terminated on Branch	$1,735,147
AVOIDABLE COSTS	
2. On-Branch Costs (Lines 2a through 2c)	$ 547,266
a. Maintenance of Way and Structures (Normalized)	371,926
b. Transportation	115,183
c. Freight Car Costs	60,157
3. Off-Branch Costs	935,930
4. Total Avoidable Costs (Line 2 plus Line 3)	$1,483,196
5. Avoidable Loss from Operations (Line 1 minus Line 4)	($ 251,951)(1)
6. Net Liquidation (Line 6a plus Line 6b)	$1,483,600
a. Materials	1,255,000
b. Land	228,000
7. Rate of Return	12.1%
8. Opportunity Cost Foregone (Line 6 times Line 7)	179,515
9. Total Avoidable Loss (Line 5 plus Line 8)	($ 72,456)(1)

(1) Parenthesis indicates gain.

SOURCE: Wilbur Smith and Associates

TABLE 5-11.4
DISTANCE TO SELECTED
RAILROAD STATIONS
Glendive to Circle

TOWN	ALTERNATIVE RAIL STATION	RAILROAD	ROAD DISTANCE
Circle	Glendive	BN	51
	Terry	BN	53
	Richey	BN	30
Lindsay	Glendive	BN	25

SOURCE: Wilbur Smith and Associates
Morrison-Maierle, Inc.

TABLE 5-11.5
LINE FACILITIES CONDITION
Glendive to Circle

Mileposts -	0.0 to 51.50
Rail -	51.5 miles of 90 lb. rail, generally fair condition; several bent rails through scattered areas of poor soil condition; 24-inch 4-hole joints, several noted with quarter cracks, the result of rail running skewing joint ties and reducing support.
Ties -	Treated mixed hardwoods and softwoods, generally in fair condition at scattered locations that were worked last year; additional ties are needed to properly surface and line track.
Tie Plates and Rail Anchors -	Varying numbers of mostly small single shoulder tie plates; it appears tie plates have been placed only on new ties being installed in recent years, an average of 30% for entire line; varying numbers of rail anchors, many locations with no anchors or an inadequate number to effectively resist movement of rail.
Ballast -	River gravel over dirt and cinders with scattered locations of small crushed stone; ballast fouled and poor surface and alignment at scattered locations, some locations surfaced and lined within the last year that appear to be holding good surface; additional ballast unloaded for surfacing at scattered locations.
Bridges -	Twenty (20) bridges totalling approximately 2,432 L.F.; bridges observed appeared to be well maintained.
Road Crossings-	Eleven (11), one (1) paved, ten (10) unpaved.
Roadbed/ Ditching -	Roadbed width is adequate, scattered locations of poor subgrade creating problem in maintaining track surface and line; poor side drainage in several cuts, some side ditches have been opened and ballast cut away from heads of ties in an attempt to dry out track and roadbed (and to facilitate tie renewals where muddy).
Vegetation -	Scattered locations of grass and vines in track; low weeds and grass on roadbed and right-of-way.

Timetable Speeds - 25 mph Glendive (MP 0.0) and MP 44.0
35 mph MP 44 and MP 51.5

Table 5-11.5 - (Continued)

Weight Restrictions - 263,000 lbs. gross weight

Net Liquidation - $1,255,600 (materials), $228,000 (land)

SOURCES: Wilbur Smith and Associates
Burlington Northern Railroad
Railway Line Clearances, Vol. 191, 1981

TABLE 5-11.6
REHABILITATION COST ESTIMATE
Glendive to Circle

COST ITEM	COST
Clean Ditches, 10 miles @ $1,000	$ 10,000
Rail, 90 lb., Relay (158.4 tons/mile x 0.5 miles) @ $175	13,860
Joints, 90 lb. S.H. (32/mile x 51.5 miles) @ $6.00	9,888
Bolts and Nut Locks, New (128/mile x 51.5 miles) @ $1.75	11,536
Crossties, New (600/mile x 51.5 miles) @ $17.00	525,300
Tie Plates, S.H. (8,400/mile x 51.5 miles) @ $1.50	648,900
Spikes, New (3,000/mile x 51.5 miles) @ $0.36	55,620
Rail Anchors, New (1,920/mile x 51.5 miles) @ $1.15	113,712
Ballast (700 tons/mile x 51.5 miles) @ $3.75	135,188
Unload Materials, 0.5 miles @ $2,800	1,400
Unload Material, 51.0 miles @ $1,500	76,500
Lay Rail, 0.5 miles @ $15,000	7,500
Timber and Surface, 51.5 miles @ $6,000	309,000
Install Joints and Anchors, 51.5 miles @ $1,000	51,500
Work Road Crossings, 11 @ $2,000	22,000
Subtotal	$ 1,991,904
Less Value of Material Released	- 8,000
Total Rehabilitation Cost	$ 1,983,904

SOURCE: Wilbur Smith and Associates.

which indicates that approximately $2.0 million will place the line in a stable long term condition. Most of the work is for ties, anchors, tie plates, ballast, labor and equipment.

Effects of Abandonment

Railroad - Without this line, the railroad could use the assets of the line in other parts of the system. However, the line is profitable in terms of operations, and it might also lose some of the revenue. The fact that a grain subterminal is being constructed at Circle will offset potential loss on the line and should increase profits in the future.

Rail Users - Based on the 1980 data, it is estimated that rail users on this line would experience a $906,000 annual increase in transportation costs without the line. When the Circle subterminal is in full operation, the impacts would be much higher without rail service.

Highways/Bridges - Federal Aid Primary 57, which parallels the subject line, is in good condition from Circle to Glendive and needs no rehabilitation or repairs. Table 5-11.7 lists the principal routes around this line and the estimated cost of needed improvements to roads and bridges. At the 1980 traffic level, approximately 4 farm truck trips and 2 grain truck trips would be generated on an average daily traffic basis.

TABLE 5-11.7
AREA HIGHWAY AND BRIDGE NEEDS
Glendive to Circle

ROUTE	FROM	TO	LENGTH	HIGHWAY NEEDS ($1000)	BRIDGE NEEDS ($1000)	AVERAGE COST/MILE ($1000)
FAP 25	Circle	Wolf Point	52.4	$7,348	$3,438	$140
FAP 51	FAP 57	Richey	27.5	17	0	0.6
FAP 57	Circle	Lindsay	24.7	0	0	0
FAP 57	Lindsay	Glendive	20.1	0	0	0

SOURCE: Montana Department of Highways
Morrison-Maierle, Inc.

Energy - Since it is anticipated that an abandonment would generate considerable long haul trucking, the net change in fuel usage would also be considerable. It is estimated that 18,000 more gallons of fuel would be consumed after an abandonment.

Alternatives Evaluated

As a light density line, not identified for possible abandonment, this line is eligible for rehabilitation assistance. Tables 5-11.8 and 5-11.9 summarize this option as discussed below.

Rehabilitation - The present value of the benefits is $7.0 million, and the present value of costs is $7.5 million. Therefore, if this option could prevent an abandonment sometime in the future, then the benefit/cost ratio is 0.93. As discussed earlier, the ratio would be significantly higher after the subterminal is in full operation.

Conclusions

A rehabilitation project for this line has a reasonable benefit/cost ratio based on the existing traffic, and it would have a higher value with a subterminal in place. An important feature of this line is that substantial investment has already occurred which indicates a local commitment to the line. For these reasons it is recommended that this line be actively considered for a rehabilitation project.

TABLE 5-11.8
DISTRIBUTION OF BENEFITS
OF ALTERNATIVE PROJECTS
Glendive to Circle

BENEFIT TYPE	DESCRIPTION	ESTIMATED BENEFIT
	Rehabilitation Alternative	
Railroad	Annual cost savings on-branch.	$ - 726,782
	Annual cost savings off-branch.	- 19,556
Truck/User	Annual line haul and handling cost.	905,759
Other	Net salvage value of rehabilitation materials.	407,880

Note: Negative value indicates disbenefit to affected party.

SOURCE: Wilbur Smith and Associates.

TABLE 5-11.9
BENEFIT-COST ANALYSIS
OF ALTERNATIVE PROJECTS
Glendive to Circle

ALTERNATIVE PROJECT	PROJECT COST	PRESENT VALUE(1) Benefit	Cost (000's)	Net	BENEFIT/COST RATIO
Rehabilitation	$1,983.9	$7,021.2	$7,533.2	$ - 512.0	0.93

(1) Discount rate - 4 percent.
Project life - 10 years.

SOURCE: Wilbur Smith and Associates.

LAVIN SPUR
Burlington Northern Railroad

The Lavin Spur is a short segment which extends south from the BN main line from Gerber to Tracy in Cascade County. The spur is southeast of Great Falls as illustrated in Figure 5-12.

The status and issues of this line can be summarized as follows:

- Light density line which has not been proposed for potential abandonment.
- Traffic is very low; little or no traffic moved in 1981; only 66 carloads in 1980.
- Major traffic is farm products; area is very close to Great Falls and much production is currently trucked to larger facilities in Great Falls.
- Some deposits of coal are in the area; none is mined at present.

Rail Use

As shown in Table 5-12.1, approximately 66 carloads were carried over this line in 1980. Other information indicates that most if not all of this traffic switched to truck in 1981. Table 5-12.2 lists the major rail user, a grain elevator.

Rail Service

This spur connects with the BN main line southeast of Great Falls. Service is infrequent and may have stopped due to lack of demand. The speed limit is 15 mph.

No information is available in terms of revenue for this line, but it is estimated that the cost of operations was $134,854 in 1980. The 1981

TABLE 5-12.1
RAILROAD USE STATISTICS - 1980
Lavin Spur

STATION	CARLOADS Number	CARLOADS Percent	TONS Number	TONS Percent	COMMODITY
		Originating			
Tracy	65	98.5	5,781	98.4	Farm Products
		Terminating			
Tracy	1	1.5	95	1.6	Coal
Total Traffic	66	100.0	5,876	100.0	

1980 Statistical Summary
Length: 4.4 miles
Million Gross Ton-Miles per Mile: 0.016
Carloads Per Week: 1.3
Carloads Per Mile: 15.0
Revenue: Unavailable

SOURCE: Montana Department of Commerce

TABLE 5-12.2
RAILROAD USERS
Lavin Spur

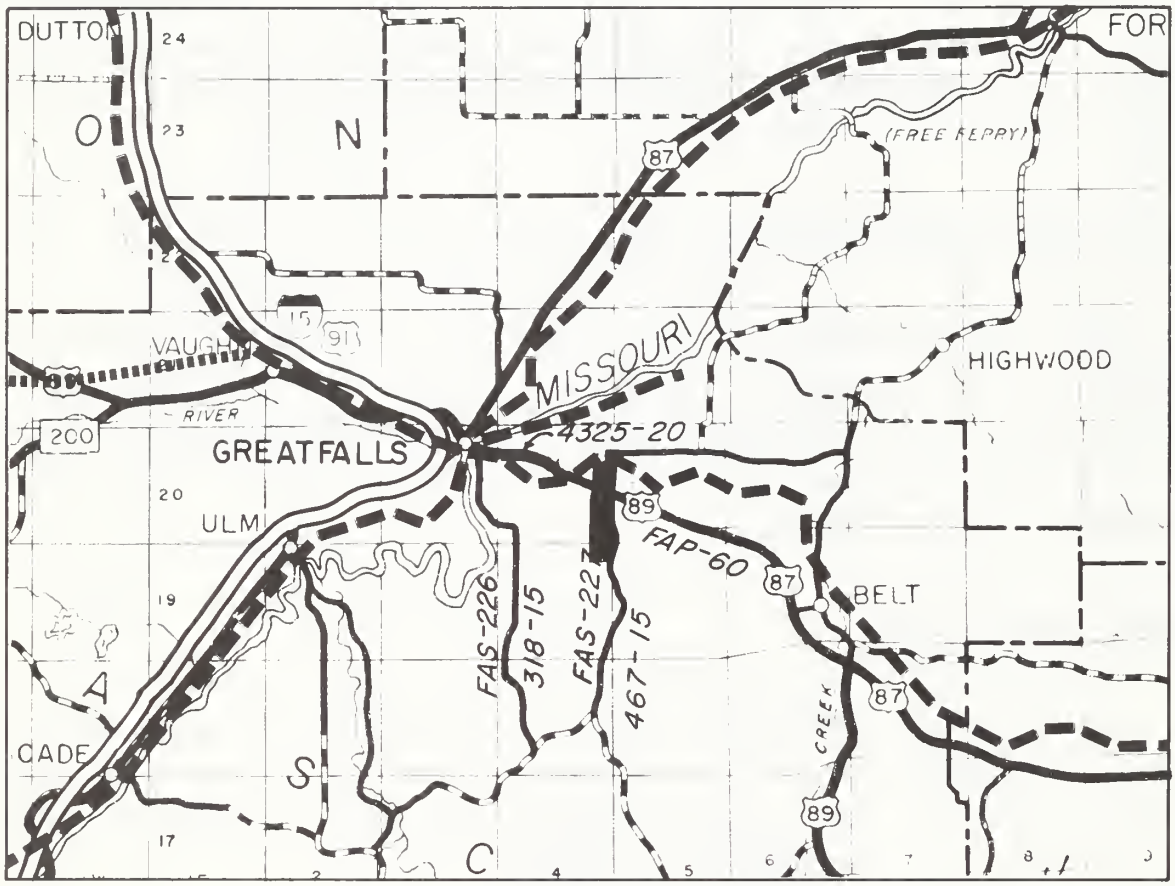
NAME	STATION	SIDING(1)	COMMODITY
General Mills	Tracy	P	Farm Products

(1) P - Private or leased siding on premises.
T - Team track.

SOURCE: Montana Department of Commerce

LAVIN SPUR

RAILROAD : BURLINGTON NORTHERN
LENGTH : 4.4 MILES
COUNTIES : CASCADE
STATUS : LIGHT DENSITY LINE



0 10 20 30

MILES

LEGEND

SUBJECT LINE
OTHER LINES IN THIS REPORT
LINES PREVIOUSLY ANALYZED
ALL OTHER LINES
325-12 1981 ADT - % TRUCK

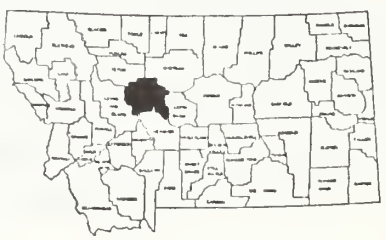


FIGURE 5-12

cost would be generally limited to the opportunity cost since there was virtually no traffic. Table 5-12.3 provides additional information.

Highways

The Lavin Spur is paralleled by Federal Aid Secondary Route 227 as shown on Figure 5-12. Traffic on the highway was approximately 470 vehicles per day in 1981 with 15 percent truck traffic. The major highway in the area is FAP 60 (US 89) which carried an average of 4,325 vehicles per day in 1981. Table 5-12.4 lists the distance to other rail sidings in Great Falls.

Rail Inventory and Condition

The line has adequate medium weight rail, but other components are in fair to poor condition. Additional crossties and larger tie plates are needed as well as surfacing and lining. The posted speed is 15 mph, and the line is capable of carrying fully loaded hoppers. Table 5-12.5 provides additional details.

Rehabilitation Costs

Approximately $190,000 is needed to rehabilitate the Lavin Spur to 25 mph operations. The major component of the cost is related to additional crossties. Table 5-12.6 presents the details of this estimate.

Coal Potential(1)

Although this area does not currently produce coal, the coal seam in the Stockett-Sand Coulee Basin, which contains this branch line is 1 to 2 feet thick in one area and 4 to 7 feet thick in another. One former mine, the Cottonwood Mine near Stockett, closed during the early part of the century. One estimate is that this basin contains in the order of 163 million short tons in beds greater than 3 feet and that it is

(1) Silverman, A.J. and Harris, W.L., "Stratigraphy and Economic Geology of the Great Falls-Lewistown Coal Field, Central Montana", Bulletin 56, Montana Bureau of Mines and Geology, Butte, Montana, April 1967.

TABLE 5-12.3
ESTIMATED REVENUES AND COSTS
Lavin Spur

REVENUES ATTRIBUTABLE	YEAR 1980
1. Freight Originated and/or Terminated on Branch	NA(1)
AVOIDABLE COSTS	
2. On-Branch Costs (Lines 2a through 2c)	$ 39,106
a. Maintenance of Way and Structures (Normalized)	28,899
b. Transportation	6,196
c. Freight Car Costs	4,011
3. Off-Branch Costs	80,151
4. Total Avoidable Costs (Line 2 plus Line 3)	$ 119,257
5. Avoidable Loss from Operations (Line 1 minus Line 4)	NA
6. Net Liquidation (Line 6a plus Line 5b)	$ 128,900
a. Materials	112,900
b. Land	16,000
7. Rate of Return	12.1%
8. Opportunity Cost Foregone (Line 6 times Line 7)	15,597
9. Total Avoidable Loss (Line 5 plus Line 8)	NA

(1) Not available.

SOURCE: Wilbur Smith and Associates.

TABLE 5-12.4
DISTANCE TO SELECTED
RAILROAD STATIONS
Lavin Spur

TOWN	ALTERNATIVE RAIL STATION	RAILROAD	ROAD DISTANCE
Tracy	Great Falls	BN	14

SOURCE: Wilbur Smith and Associates
Morrison-Maierle, Inc.

TABLE 5-12.5
LINE FACILITIES CONDITION
Lavin Spur

Mileposts	-	0.0 to 4.4
Rail	-	4.4 miles of 90 lb. rail; fair surface and line except low joints at scattered locations of poor roadbed support, a few rails have joints applied at points where rail is defective or damaged; 24-inch 4-hole joints.
Ties	-	Treated mixed hardwoods and softwoods, in poor condition.
Tie Plates and Rail Anchors	-	Fully plated with single shoulder tie plates, approximately 50% are small 5" x 7" plates and provide inadequate tie support for heavier loads; scattered locations of varying numbers of rail anchors, no significant problem with rail running, however.
Ballast	-	Generally cinders and dirt with scattered locations of crushed rock, a few areas where additional ballast needed at heads of ties.
Bridges	-	One (1) bridge approximately 110 L.F.
Road Crossings	-	Three (3), two (2) paved, one (1) unpaved.
Roadbed/Ditching	-	Roadbed generally narrow, a few locations severely worn down by horses and motor bikes; although side drainage appears adequate, several low areas appear subject to flooding.
Vegetation	-	Scattered areas of grass in track; right-of-way growth controlled.
Timetable Speed	-	15 mph (posted speed)
Weight Restriction	-	263,000 lbs. gross weight.
Net Liquidation	-	$112,900 (materials), $16,000 (land).

SOURCE: Wilbur Smith and Associates
Burlington Northern Railroad
Railway Line Clearances, Vol. 191, 1981

TABLE 5-12.6
REHABILITATION COST ESTIMATE
Lavin Spur

COST ITEM		COST
Rail, 90 lb. Relay (158.4 tons/mile x 0.4 miles) @ $175	$	11,088
Joints, 90 lb. S.H. (320/mile x 0.4 miles) @ $6.00		768
Bolts and Nut Locks, New (1,280/mile x 0.4 miles) @ $1.75		896
Crossties, New (1,000/mile x 4.4 miles) @ $17.00		74,800
Spikes, New (4,000/mile x 4.4 miles) @ $0.36		6,336
Tie Plates (1,000/mile x 4.4 miles) @ $1.25		5,500
Rail Anchors, New (2,560/mile x 4.4 miles) @ $1.15		12,954
Ballast, (1,000 tons/mile x 4.4 miles) @ $3.75		16,500
Unload Material, 0.4 miles @ $2,800		1,120
Unload Material, 4.0 miles @ $1,800		7,200
Lay Rail, 0.4 miles @ $15,000		6,000
Timber and Surface, 4.0 miles @ $10,000		40,000
Apply Rail Anchors, 4.4 miles @ $800		3,520
Work Road Crossings 3 @ $2,000		6,000
Subtotal	$	192,682
Less Value of Materials Released	-	3,930
Total Rehabilitation Cost	$	188,752

SOURCE: Wilbur Smith and Associates.

the best in the Great Falls field in terms of thickness, ash, and BTU content. Due to the size of the amount of overburden, it was concluded by the researchers that an underground system would be the only economic means of extraction. No active plans for opening a mine in this area are known.

Effects of Abandonment

Railroad - There is little or no traffic on this line now, and the railroad would save approximately $16,000 annually in return on value costs if the line were abandoned and the assets used elsewhere. However, abandonment would cause a major future expense if coal were ever to be extracted from this area since the line would have to be rebuilt.

Rail Users - At the 1980 traffic level, abandonment would increase costs by approximately $19,000 annually. However, there would actually be little impact now that the line is not used.

Highways/Bridges - Based on inspections and reports completed by the Montana Department of Highways, Federal Aid Secondary Route 227 is in need of rehabilitation and reconstruction costing approximately $516,000 between FAS 226 and FAP 60. The average cost per mile for the highway needs for this 17.6-mile section is therefore $29,000. These costs would not be an impact of abandonment, because there would not be any additional traffic caused by a loss of service.

Alternatives Evaluated

Tables 5-12.7 and 5-12.8 summarize the analysis of the only project type for which this line is eligible.

Rehabilitation - This option is relatively low in cost, but the benefits are also low at the 1980 traffic level. There are almost no benefits at the 1981 traffic level.

TABLE 5-12.7
DISTRIBUTION OF BENEFITS
OF ALTERNATIVE PROJECTS
Lavin Spur

BENEFIT TYPE	DESCRIPTION	ESTIMATED BENEFIT
	Rehabilitation Alternative	
Railroad	Annual cost savings on-branch.	$ - 54,704
	Annual cost savings off-branch.	0
Truck/User	Annual line haul and handling cost.	19,278
Other	Net salvage value of rehabilitation materials.	24,935

Note: Negative value indicates disbenefit to affected party.

SOURCE: Wilbur Smith and Associates.

TABLE 5-12.8
BENEFIT-COST ANALYSIS
OF ALTERNATIVE PROJECTS
Lavin Spur

ALTERNATIVE PROJECT	PROJECT COST	PRESENT VALUE(1) Benefit	Cost (000's)	Net	BENEFIT/COST RATIO
Rehabilitation	$ 188.8	$163.0	$595.5	$ -432.5	0.27

(1) Discount rate - 4 percent.
Project life - 10 years.

SOURCE: Wilbur Smith and Associates.

Conclusions

Unless the coal deposits in the area would prove to be of sufficient size to merit rail banking, it appears that this line should rank relatively low for project funding purposes.

MANHATTAN TO ANCENEY
Burlington Northern Railroad

This 15-mile branch line is in Gallatin County and extends south from the BN main line to Anceney. There are two stations on the line. The major traffic on this line is farm products. Figure 5-13 illustrates the location of the Manhattan/Anceney branch.

The status and issues concerning this line are as follows:

- Category I which indicates that the railroad may file for abandonment within 3 years.
- Stations are relatively close to interstate highway; grain traffic appears to be switching to truck.
- Traffic in 1979 and 1980 lowest for which data are available.
- Track has lightweight rail and ties in poor condition; line cannot accommodate fully loaded covered hoppers.

Rail Use

The volume and type of traffic for this line is listed in Table 5-13.1 which indicates that nearly 90 percent of the 1980 traffic was farm products. Nearly all of this traffic was from Amsterdam approximately 7 miles from the main line. This traffic on a per mile basis is relatively low, only 7 carload per mile. The rail user survey conducted by the Department identified the five railroad customers named in Table 5-13.2.

Rail Service

The Anceney branch connects with the BN's high traffic main line across the south central part of the State. Service is provided on a "as required" basis according to the BN. The line has a 25-mph speed limit although there are some speed restrictions.

TABLE 5-13.1
RAILROAD USE STATISTICS - 1980
Manhattan to Anceney

STATION	CARLOADS Number	CARLOADS Percent	Tons Number	Tons Percent	COMMODITY
			Originating		
Amsterdam	94	81.0	7,461	85.2	Farm Products
Anceney	12	10.4	952	10.9	Farm Products
			Terminating		
Amsterdam	2	1.7	66	0.7	Nonmetallic Minerals
	2	1.7	157	1.8	Chemicals
	6	5.2	120	1.4	Machinery
Total Traffic	116	100.0	8,756	100.0	

1980 Statistical Summary

Length: 15.2 miles
Million Gross Ton-Miles Per Mile: 0.023
Carloads Per Week: 2.2
Carloads Per Mile: 7.6
Revenue: $249,628

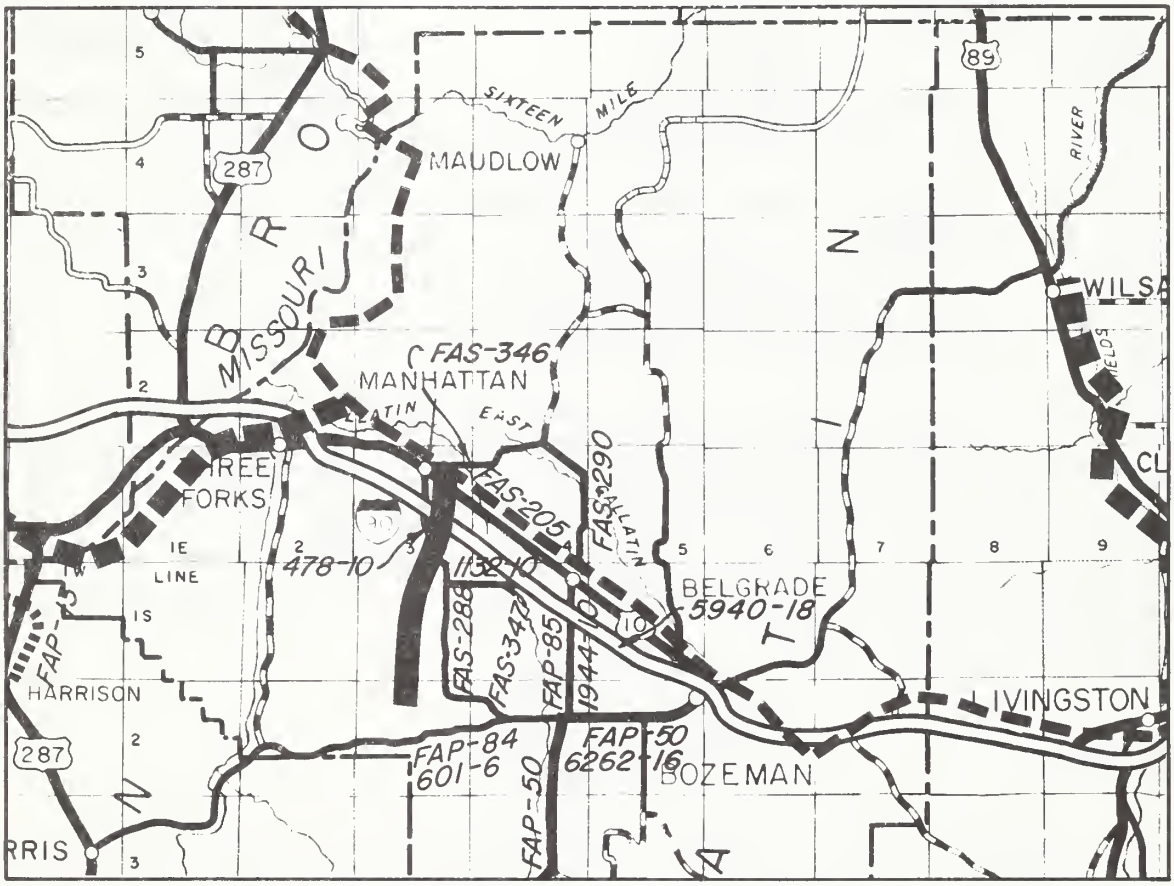
Traffic Volume History

1976	136
1977	126
1978	162
1979	110
1980	116

SOURCE: Burlington Northern Railroad
Montana Department of Commerce

MANHATTAN - ANCENEY

RAILROAD : BURLINGTON NORTHERN
LENGTH : 15.2 MILES
COUNTIES : GALLATIN
STATUS : POTENTIAL ABANDONMENT - CATEGORY I



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MILES

LEGEND

- SUBJECT LINE
- OTHER LINES IN THIS REPORT
- LINES PREVIOUSLY ANALYZED
- ALL OTHER LINES
- 325 - 12 1981 ADT - % TRUCK

FIGURE 5-13

TABLE 5-13.2
RAILROAD USERS
Manhattan to Anceney

NAME	STATION	SIDING(1)	COMMODITY
Independent Grain	Anceney	P	Farm Products
Independent Grain	Amsterdam	P	Farm Products
Amsterdam Lumber	Amsterdam	P	Nonmetallic Minerals
Conagra	Amsterdam	P	Chemicals
Churchill Equipment	Amsterdam	T	Machinery

(1) P - Private or leased siding on premises
T - Team track

SOURCE: Burlington Northern Railroad
Montana Department of Commerce

The estimated loss on this branch is presented in Table 5-13.3. The normalized maintenance of way allowance and the return on the value of the line combine to offset the revenue. In 1980 the line operated at a loss of $38,162 on gross revenues of approximately $250,000. If the railroad had not operated south of Amsterdam that year, it is estimated that the carrier would have made a profit of $50,394.

Highways

The Manhattan to Anceney line is paralleled by Federal Aid Secondary Route 288 and crosses under Interstate Highway 90. Traffic on FAS 288 was 478 vehicles per day in 1981 with 10 percent truck traffic as indicated on Figure 5-13. Access from the Anceney area to I-90 and the BN main line is also provided by Federal Aid Primary Routes 50, 84 and 85. Table 5-13.4 lists the distances to the rail station on the main line.

Rail Inventory and Condition

The results of an inspection of the Manhattan/Anceney branch are given in Table 5-13.5. The line is constructed with lightweight rail which at

TABLE 5-13.3
ESTIMATED REVENUES AND COSTS
Manhattan to Anceney

REVENUES ATTRIBUTABLE	YEAR 1980
1. Freight Originated and/or Terminated on Branch	$ 249,628
AVOIDABLE COSTS	
2. On-Branch Costs (Lines 2a through 2c)	$ 147,969
a. Maintenance of Way and Structures (Normalized)	113,301
b. Transportation	27,669
c. Freight Car Costs	6,999
3. Off-Branch Costs	117,000
4. Total Avoidable Costs (Line 2 plus Line 3)	$ 264,969
5. Avoidable Loss from Operations (Line 1 minus Line 4)	$ 15,341
6. Net Liquidation (Line 6a plus Line 5b)	$ 188,600
a. Materials	142,600
b. Land	46,000
7. Rate of Return	12.1%
8. Opportunity Cost Foregone (Line 6 times Line 7)	22,821
9. Total Avoidable Loss (Line 5 plus Line 8)	$ 38,162

SOURCE: Wilbur Smith and Associates

TABLE 5-13.4
DISTANCE TO SELECTED
RAILROAD STATIONS
Manhattan to Anceney

TOWN	ALTERNATIVE RAIL STATION	RAILROAD	ROAD DISTANCE
Amsterdam	Manhattan	BN	5
Anceney	Manhattan	BN	15

SOURCE: Wilbur Smith and Associates
Morrison-Maierle, Inc.

TABLE 5-13.5
LINE FACILITIES CONDITION
Manhattan to Anceney

Mileposts	-	0.23 to 15.42
Rail	-	15.19 miles of 72 lb. rail except for approximately 0.2 miles of 90 lb., 100 lb. and 112 lb. rail through some road crossings; rail, light but generally with good surface, only few bent rails noted; curve worn rail transposed and on tangents segments; 24-inch 4-hole joints, several noted with quarter cracks.
Ties	-	Treated mixed hardwoods and softwoods, generally in poor condition; some ties spotted in at scattered locations; ties cut by small rail without tie plates at several locations and joint ties damaged due to lack of rail anchors allowing rail to run and skew ties.
Tie Plates and Rail Anchors	-	Varying numbers of tie plates averaging approximately 50% for entire line; 100% plates on several curves; no rail anchors, rail running at several locations.
Ballast	-	Cinders and dirt, scattered locations of small stone chips over dirt; several locations where ballast needed at heads of ties and in cribs.
Bridges	-	Nineteen (19) bridges totalling approximately 1,060 L.F.
Road Crossings	-	Nine (9), five (5) paved, four (4) unpaved.
Roadbed/Ditching	-	Roadbed width varies but generally adequate between MP 0.0 and MP 7.0; some scattered locations of very narrow roadbed between MP 7.0 and Anceney, some erosion of embankment by adjacent streams; no side ditch drainage problems noted.
Vegetation	-	Grass and weeds in track on most of line; however recently sprayed with weed control chemicals; roadbed and right-of-way has low grass and weeds throughout.
Timetable Speed	-	25 mph, (8 mph speed restriction noted at MP 13.0).
Weight Restriction	-	220,000 lbs. gross weight (Line Clearance Diagram previously listed 263,000 lbs. gross weight).
Net Liquidation	-	$142,600 (materials), $46,000 (land).

SOURCE: Wilbur Smith and Associates
Burlington Northern Railroad
Railway Line Clearances, Vol. 191, 1981

present has a good surface. However, the ties are in poor condition and have an inadequate number of tie plates. There are few if any rail anchors, and joint ties are damaged due to rail which has run and skewed the ties. The maximum gross weight of cars and ladings is 220,000 pounds.

Rehabilitation Costs

This line is in need of a relatively large amount of rehabilitation if it is to operate at FRA Class 2 (25 mph) and at 263,000 pounds for the long term. The estimated cost of such rehabilitation is approximately $1.8 million as shown in Table 5-13.6. The major components of this cost are heavier rail which can withstand modern wheel loads and additional cross ties.

Effects of Abandonment

Railroad - With the relatively low level of traffic on this line, the railroad is losing approximately $38,000 per year based on 1980 traffic. If the line were to be abandoned, then the railroad would save this amount and could employ the assets on other parts of the system.

Rail Users - It is estimated that the majority of the traffic on this line would switch to truck and barge if this line were abandoned because of the proximity to the interstate highway. The net economic effect of this action would be a net $51,000 increase annually in transport costs.

Highways/Bridges - Reconstruction and rehabilitation needs for the principal highways affected by a potential abandonment are summarized in Table 5-13.7. Since potential truck traffic directly caused by abandonment of this line is relatively low, these needs would not increase significantly. Approximately 1 additional truck trip would be generated on an average daily traffic basis.

TABLE 5-13.6
REHABILITATION COST ESTIMATE
Manhattan to Anceney

COST ITEM	COST
Rail, 100 lb. Relay (176 tons/mile x 15.0 miles) @ $275	$ 726,000
Joints, 100 lb. S.H. (270/mile x 15.0 miles) @ $10.00	40,500
Bolts and Nut Locks, New (1,080/mile x 15.0 miles) @ $2.00	32,400
Tie Plates, S.H. (6,000/mile x 15.0 miles) @ $2.75	247,500
Spikes, New (12,000/mile x 15.0 miles) @ $0.36	64,800
Rail Anchors, New (3,240/mile x 15.0 miles) @ $1.15	55,890
Crossties, New (800/mile x 15.2 miles) @ $17.00	206,720
Ballast, (1,000 tons/mile x 15.2 miles) @ $3.75	57,000
Turnouts, #9, 100 lb. S.H. 7 @ $10,000	70,000
Unload Material, 15.0 miles @ $2,800	42,000
Unload Material, 0.2 miles @ $1,500	300
Lay Rail, 15.0 miles @ $15,000	225,000
Timber and Surface, 15.0 miles @ $8,000	120,000
Install Turnouts 7 @ $3,000	21,000
Work Road Crossings 9 @ $2,000	18,000
Subtotal	$1,927,110
Less Value of Materials Released	- 131,200
Total Rehabilitation Cost	$1,795,910

SOURCE: Wilbur Smith and Associates

TABLE 5-13.7
AREA HIGHWAY AND BRIDGE NEEDS
Manhattan to Anceney

ROUTE	FROM	TO	LENGTH	ROADWAY NEEDS ($1000)	BRIDGE NEEDS ($1000)	AVERAGE COST PER MILE ($1000)
FAP-85	FAP-84	I-90	6.7	$ 0	$ 113	$ 17
FAP-84	FAP-13	FAP-50	29.1	3,558	460	138
FAS-288	FAP-84	Manhatten	16.4	1,200	25	75

Source: Montana Department of Highways
Morrison-Maierle, Inc.

Energy - Even though the additional truck traffic would be relatively small, the long haul trips would be less fuel efficienct than the railroad. Approximately 51,000 more gallons of fuel would be consumed annually after an abandonment.

Alternatives Analyzed

Several alternative projects for this line were evaluated as summarized in Table 5-13.8 and 5-13.9.

Rehabilitation - This alternative is quite expensive since the lightweight rail would have to be replaced. The present value of the benefits over 10 years is lower than the costs, and the benefit/cost ratio is 0.68. Under this alternative the line could accommodate fully loaded covered hoppers.

Acquisition - If this line were acquired by another operator, the benefit/cost ratio is somewhat higher because the cost is lower than the rehabilitation option. However, the line would still operate under a weight restriction which would discourage use. The potential for shortline operation is low.

Acquisition/Rehabilitation - This alternative is the combination of the previously discussed alternatives and has a ratio of 0.64.

Partial Abandonment and Rehabilitation - Nearly all of the traffic on this line originates or terminates at Amsterdam which is approximately 7 miles south of the junction. The cost to rehabilitate this portion is approximately $792,000, and the benefits to rail users would be nearly the same. The BN, however, would save by abandoning the 8.5 miles from Amsterdam to Anceney. The ratio of the present value of benefits to costs of this alternative is 1.91 and the option would allow 100-ton car loadings.

Partial Abandonment and Acquisition - If the Manhattan/Amsterdam segment were preserved through acquisition, the present value of costs would be approximately $773,000, and the present value of the benefits over 10 years is $2.6 million. Therefore the benefit/cost ratio is 3.31.

TABLE 5-13.8
DISTRIBUTION OF BENEFITS
OF ALTERNATIVE PROJECTS
Manhattan to Anceney

BENEFIT TYPE	DESCRIPTION	ESTIMATED BENEFIT
	Rehabilitation Alternative	
Railroad	Annual cost savings on-branch.	$ - 170,789
	Annual cost savings off-branch.	- 92,793
Truck/User	Annual line haul and handling cost.	197,581
Barge/User	Annual cost.	45,193
Other	Net salvage value of rehabilitation materials.	1,050,526
	Acquisition Alternative	
Railroad/ Operator	Annual cost savings on-branch.	$ - 170,789
	Annual cost savings off-branch.	- 92,793
Truck/User	Annual line haul and handling cost.	197,581
Barge/User	Annual cost.	45,193
Other	Liquidation value of land.	46,000
	Net salvage value of track materials.	142,600
	Acquisition/Rehabilitation Alternative	
Railroad/ Operator	Annual cost savings on-branch.	$ - 170,789
	Annual cost savings off-branch.	- 92,793
Truck/User	Annual line haul and handling cost.	197,581
Barge/User	Annual cost.	45,193
Other	Liquidation value of land.	46,000
	Net salvage value of track materials.	1,050,526
	Partial Abandonment, Rehabilitation Alternative	
Railroad	Annual cost savings on-branch.	$ 88,183
	Annual cost savings off-branch.	-92,793
Truck/User	Annual line haul and handling cost.	192,732
Barge/User	Annual cost.	45,193
Other	Net salvage of value of rehabilitation materials.	463,061
	Net liquidation value of abandoned segment.	105,467
	Partial Abandonment, Acquisition Alternative	
Railroad	Annual cost savings on-branch.	$ 88,183
	Annual cost savings off-branch.	- 92,793
Truck/User	Annual line haul and handling cost.	192,732
Barge/User	Annual cost.	45,193
Other	Liquidation value of land.	20,276
	Net salvage value of track materials.	62,857
	Net liquidation value of abandoned segment.	105,467
	Partial Abandonment, Acquisition/Rehabilitation Alternative	
Railroad	Annual cost savings on-branch.	$ 88,183
	Annual cost savings off-branch.	- 92,793
Truck/User	Annual line haul and handling cost.	192,732
Barge/User	Annual cost.	45,193
Other	Liquidation value of land.	20,276
	Net salvage value of track materials.	463,061
	Net liquidation value of abandoned segment.	105,467

Note: Negative value indicates disbenefit to affected party.

SOURCE: Wilbur Smith and Associates.

TABLE 5-13.9
BENEFIT-COST ANALYSIS
OF ALTERNATIVE PROJECTS
Manhattan to Anceney

ALTERNATIVE PROJECT	PROJECT COST	PRESENT VALUE(1) Benefit	Cost (000's)	Net	BENEFIT/COST RATIO
Rehabilitation	$1,795.9	$2,543.2	$3,755.7	$-1,212.5	0.68
Acquisition	188.6	1,937.6	2,148.4	- 210.8	0.90
Acquisition/Rehabilitation	1,984.5	2,543.2	3,944.3	-1,401.1	0.64
Partial Abandonment, Rehabilitation	791.6	2,824.2	1,481.6	1,342.6	1.91
Partial Abandonment, Acquisition	83.1	2,557.2	773.0	1,784.2	3.31
Partial Abandonment, Acquisition/Rehabilitation	874.8	2,838.4	1,564.7	1,273.7	1.81

(1) Discount rate - 4 percent.
Project life - 10 years.

SOURCE: Wilbur Smith and Associates.

Partial Abandonment, Rehabilitation, Acquisition - This alternative is the combination of the previous two, and the benefit/cost ratio is 1.81.

Conclusions

This branch line is in close proximity to an interstate, which appears to be one factor for the gradual diversion to trucks. The other principal factor is the lightweight rail and the subsequent light load limit which prevents the use of fully load 100-ton covered hoppers. It appears that the Manhattan/Amsterdam segment offers the best opportunity for the preservation of rail service, and it is recommended that this segment be considered for funding if it ranks sufficiently high in comparison to other lines analyzed herein.

MISSION TO WILSALL
Burlington Northern Railroad

This 23-mile branch line extends north from the BN southern main line at Mission to Wilsall in Park County. Three stations are on the line, Chadborn, Clyde Park and Wilsall; and the principal traffic is farm products. Figure 5-14 depicts this line.

The status and issues of this branch are as follows:

- Category I which indicates that the BN intends to abandon this line within 3 years.
- Line is in close proximity to interstate, and availability of trucking has caused rail traffic to decrease.
- Principal shipper in 1980 has closed the operation.
- Line operates with weight restriction which precludes use of fully loaded 100-ton hoppers.

Rail Use

Tables 5-14.1 and 5-14.2 summarize the 1980 traffic and users on this line. Chadborn, located 8.5 miles north of the main line was the busiest station and accounted for over 70 percent of the traffic. (However, current information indicates that the elevator at this facility has closed.) Nearly all of the carloads shipped contained wheat in small hoppers and boxcars.

Rail Service

The BN operates this line as required from its southern main line. The timetable speed is 20 mph.

TABLE 5-14.1
RAILROAD USE STATISTICS - 1980
Mission to Wilsall

STATION	CARLOADS Number	CARLOADS Percent	Tons Number	Tons Percent	COMMODITY
			Originating		
Chadborn (1)	285	70.4	20,520	70.4	Farm Products
Clyde Park	58	14.3	4,176	14.3	Farm Products
Wilsall	61	15.1	4,392	15.1	Farm Products
			Terminating		
Chadborn	1	0.3	43	0.2	Coal
Total Traffic	405	100.0	29,131	100.0	

1980 Statistical Summary

Length: 22.9 miles
Million Gross Ton-Miles Per Mile: 0.038
Carloads Per Week: 7.8
Carloads Per Mile: 17.7
Revenue: $ 794,301

Traffic Volume History

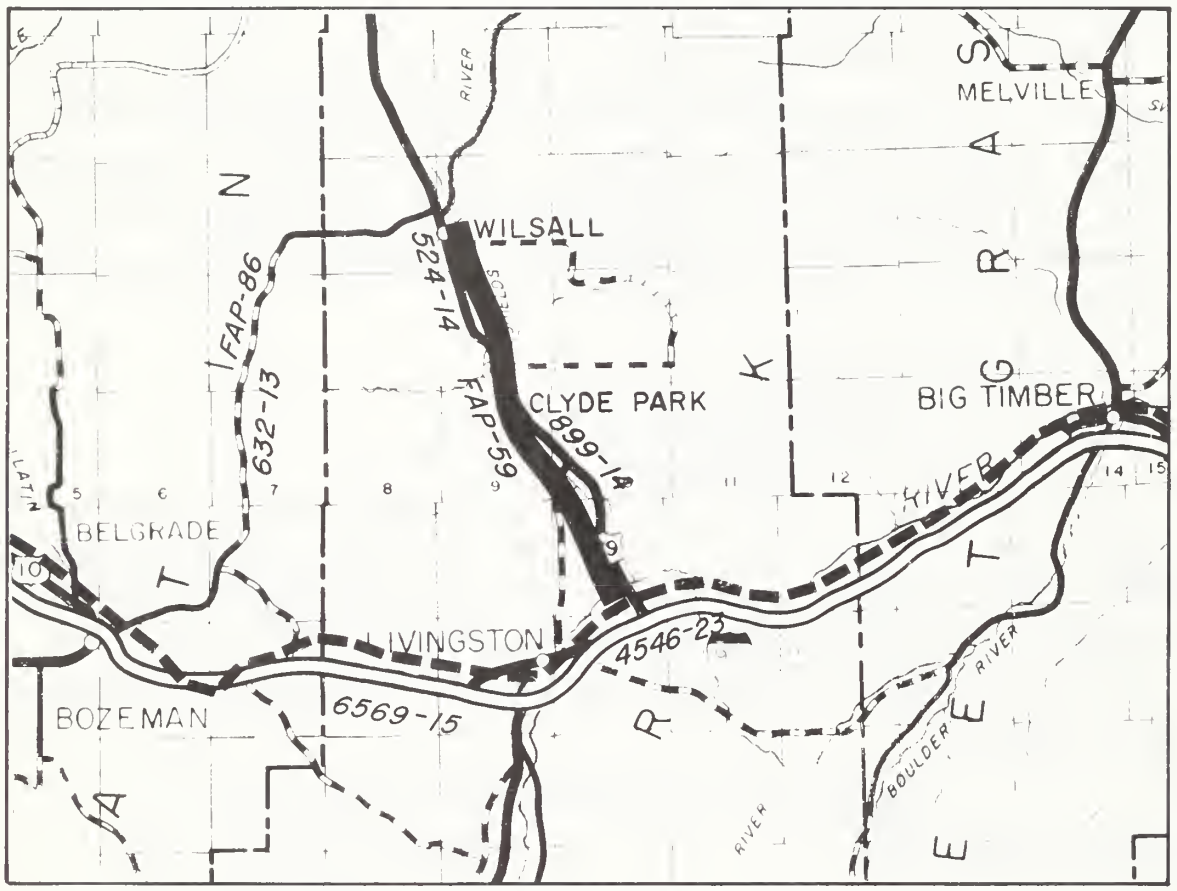
1976	332
1977	207
1978	292
1979	224
1980	405

(1) Shipper at this station closed in July, 1981.

SOURCE: Burlington Northern Railroad
Montana Department of Commerce

MISSION - WILSALL

RAILROAD: BURLINGTON NORTHERN
LENGTH : 22.9 MILES
COUNTIES: PARK
STATUS : POTENTIAL ABANDONMENT - CATEGORY I



LEGEND

- SUBJECT LINE
- OTHER LINES IN THIS REPORT
- LINES PREVIOUSLY ANALYZED
- ALL OTHER LINES
- 325-12 1981 ADT - % TRUCK

FIGURE 5-14

Table 5-14.3 summarizes the revenues and costs of this line in 1980. With revenues of nearly $800,000 and total costs of approximately $659,000, this line operated at a $135,000 profit that year. However, the largest shipper has now closed, and the 1980 results would have been a $129,000 deficit without that traffic.

Highways

Federal Aid Primary 59 parallels the line for its entire length and provides access from all three stations to Interstate 90 near Livingston. FAP 86 connects Wilsall with Bozeman. Traffic volumes on these highways vary from approximately 500 to 900 vehicles per day with 13 to 14% trucks as shown on Figure 5-14. Table 5-14.4 lists the road distance to alternate stations.

Rail Inventory and Condition

An inspection of this line, detailed in Table 5-14.5, indicates that the Mission to Wilsall line is in poor condition with generally lightweight rail. The line has a varying number of tie plates and rail anchors, both of which are ineffective due to the insufficient number of each. The line is now restricted to 220,000 pounds which is inadequate for fully loaded covered hoppers.

Rehabilitation Costs

The lightweight rail and poor crossties on this line are in need of replacement if the line is to operate at a standard 263,000 pound weight limit at 25 mph. Table 5-15.6 contains the details of a cost estimate to rehabilitate this branch. Approximately $2.7 million is needed for this work.

Effects of Abandonment

Railroad - Without this line, the railroad could employ the line's assets elsewhere. It is estimated that the railroad would save approximately $345,000 annually if the line were abandoned.

TABLE 5-14.2
RAILROAD USERS
Mission to Wilsall

NAME	STATION	SIDING(1)	COMMODITY
Rapelje Grain	Chadborn	P	Farm Products
Independent Grain	Clyde Park	P	Farm Products
Shields Grain	Wilsall	P	Farm Products

(1) P - Private or leased siding on premises.
T - Team track.

SOURCE: Burlington Northern Railroad
Montana Department of Commerce

TABLE 5-14.3
ESTIMATED REVENUES AND COSTS
Mission to Wilsall

REVENUES ATTRIBUTABLE	YEAR 1980
1. Freight Originated and/or Terminated on Branch	$ 794,301
AVOIDABLE COSTS	
2. On-Branch Costs (Lines 2a through 2c)	$ 250,134
a. Maintenance of Way and Structures (Normalized)	177,910
b. Transportation	47,346
c. Freight Car Costs	24,878
3. Off-Branch Costs	373,000
4. Total Avoidable Costs (Line 2 plus Line 3)	$ 623,134
5. Avoidable Loss from Operations (Line 1 minus Line 4)	($ 171,167)(1)
6. Net Liquidation (Line 6a plus Line 6b)	$ 297,000
a. Materials	228,000
b. Land	69,000
7. Rate of Return	12.1%
8. Opportunity Cost Foregone (Line 6 times Line 7)	$ 35,937
9. Total Avoidable Loss (Line 5 plus Line 8)	($ 135,230)

(1) Parenthesis indicates gain.

SOURCE: Wilbur Smith and Associates

TABLE 5-14.4
DISTANCE TO SELECTED
RAILROAD STATIONS
Mission to Wilsall

TOWN	ALTERNATIVE RAIL STATION	RAILROAD	ROAD DISTANCE
Chadborn	Mission	BN	8
Clyde Park	Mission	BN	15
Wilsall	Mission	BN	23

SOURCE: Wilbur Smith and Associates
Morrison-Maierle, Inc.

Rail Users - This line is relatively close to an interstate highway, and it is anticipated that much of the rail traffic would divert completely to truck and barge if the line were abandoned. The major shipper has already closed, and the annual impact of abandonment of the remaining traffic is estimated at $239,000 based on 1980 levels.

Highways/Bridges. Table 5-14.7 summarizes current highway and bridge needs for routes significant to the line. Without the line a total of 1 farm truck trip and 2 grain truck trips would be generated per average day.

Energy - The long distance truck trips would be less fuel efficient than the railroad, and over 186,000 additional gallons of fuel would be consumed annually without the line.

Alternatives Evaluated

Tables 5-14.8 and 5-14.9 provide the results of the analysis of several alternative projects for this branch.

Rehabilitation - This line is in need of a large amount of rehabilitation in order to accommodate the wheel loads of 100-ton covered hoppers. The costs are $2.7 million in addition to the railroad cost of continued service, $2.6 million, and the present value of the benefits over 10 years is $2.9 million. The ratio of benefits to costs is 0.55.

Acquisition - This option would preserve rail service through a transfer to another operator. The benefits are quite low because the line would operate at its present condition; however, the costs are considerably lower. The benefit/cost ratio is 0.69. Potentials for short-line operation appear low.

Acquisition/Rehabilitation - This option is a combination of the first two, and the ratio is lower than each because the cost is the sum of the individual options and the benefits are similar.

Conclusions

The location of the interstate, and the poor condition of the track on this line appear to be causing the traffic to divert to truck. With a rehabilitated line, however, the traffic could return since the line could then carry the heavier equipment necessary for current grain marketing. Therefore, it is recommended that the line be ranked along with others in this report according to the costs and benefits of alternative projects.

TABLE 5-14.5
LINE FACILITIES CONDITION
Mission to Wilsall

Mileposts -	0.10 to 22.98
Rail -	22.50 miles of 66 lb. rail, approximately 0.18 miles of 100 lb. rail on east leg of wye at main line, and 0.2 miles of 72 lb. at Wilsall; poor surface and line and some bent rails at scattered locations in 66 lb. rail; some rail end defects noted; 24-inch 4-hole joints.
Ties -	Generally in poor condition; joint ties being cut by joints due to rail running.
Tie Plates - and Rail Anchors	Varying numbers of tie plates, an average of 50% for entire line, most are small (6" x 8") single shoulder plates; scattered locations with rail anchors averaging approximately 25% of those required for line; many locations with no anchors allowing rail to run skewing joint ties.
Ballast -	Cinders and dirt, scattered locations of small crushed stone of river gravel.
Bridges -	Nineteen (19) totalling approximately 1,930 L.F.
Road Crossing-	Eight (8), two (2) paved, six (6) unpaved.
Roadbed/ Ditching -	Roadbed width adequate, no significant roadbed soil problems noted; no side drainage problems noted.
Vegetation -	Scattered locations of grass and weeds in track, generally cleaner on segment nearer Mission; track sprayed with weed control chemicals; low weed and grass on shoulders of roadbed and on right-of-way generally well controlled.
Timetable Speed -	20 mph
Weight Restrictions-	220,000 lbs. gross weight (shown as 263,000 lbs. gross weight in 1981 Railway Line Clearances; assumed reduced due to lightweight rail and track conditions.)
Net Liquidation-	$228,000 (materials), $ 69,000 (land).

SOURCES: Wilbur Smith and Associates
Burlington Northern Railroad
Railway Line Clearances, Vol. 191, 1981

TABLE 5-14.6
REHABILITATION COST ESTIMATE
Mission to Wilsall

COST ITEM	COST
Rail, 100 lb. Relay (176 tons/mile x 22.7 miles) @ $275	$1,098,680
Joints, 100 lb. S.H. (270/mile x 22.7 miles) @ $10	61,290
Bolts and Nut Locks, New (1,080/mile x 22.7 miles) @ $2.00	49,032
Tie Plates, S.H. (6,000/mile x 22.7 miles) @ $2.75	374,550
Spikes, New (12,000/mile x 22.7 miles) @ $0.36	98,064
Rail Anchors, New (3,240/mile x 22.7 miles) @ $1.15	84,580
Crossties, New (800/mile x 22.88 miles) @ $17.00	311,168
Ballast (700 tons/mile x 22.88 miles) @ $3.75	60,060
Turnouts #9, 100 lb. S.H. 8 @ $10,000	80,000
Unload Material, 22.88 miles @ $2,800	64,064
Lay Rail, 22.7 miles @ $15,000	340,500
Timber and Surface, 22.88 miles @ $8,000	183,040
Install Turnouts, 8 @ $3,000	24,000
Work Road Crossings, 8 @ $2,000	16,000
Subtotal	$2,845,028
Less Value of Material Released	- 180,399
Total Rehabilitation Cost	$2,664,629

SOURCE: Wilbur Smith and Associates

TABLE 5-14.7
AREA HIGHWAY AND BRIDGE NEEDS
Mission to Wilsall

ROUTE	FROM	TO	LENGTH	HIGHWAY NEEDS ($1000)	BRIDGE NEEDS ($1000)	AVERAGE COST/ MILE ($1000)
FAP 59	I-90	Clyde Park	15.3	$ 2,230	$ 805	$ 198
FAP 59	Clyde Pk.	FAP 86	9.6	1	0	0.1
FAP 86	Bozeman	FAP 59	38.2	1,275	57	35

SOURCE: Montana Department of Highways
Morrison-Maierle, Inc.

TABLE 5-14.8
DISTRIBUTION OF BENEFITS
OF ALTERNATIVE PROJECTS
Mission to Wilsall

BENEFIT TYPE	DESCRIPTION	ESTIMATED BENEFIT
	Rehabilitation Alternative	
Railroad	Annual cost savings on-branch.	$ - 253,353
	Annual cost savings off-branch.	- 92,020
Truck/User	Annual line haul and handling cost.	192,340
Barge/User	Annual cost.	47,035
Other	Net salvage value of rehabilitation materials.	1,564,427
	Acquisition Alternative	
Railroad/ Operator	Annual cost savings on-branch.	$ - 253,353
	Annual cost savings off-branch.	- 92,020
Truck/User	Annual line haul and handling cost.	192,340
Barge/User	Annual cost.	47,035
Other	Liquidation value of land.	69,000
	Net salvage value of track materials.	228,000
	Acquisition/Rehabilitation Alternative	
Railroad/ Operator	Annual cost savings on-branch.	$ - 253,353
	Annual cost savings off-branch.	- 92,020
Truck/User	Annual line haul and handling cost.	192,340
Barge/User	Annual cost.	47,035
Other	Liquidation value of land.	69,000
	Net salvage value of track materials.	1,564,427

Note: Negative value indicates disbenefit to affected party.

SOURCE: Wilbur Smith and Associates.

TABLE 5-14.8
BENEFIT-COST ANALYSIS
OF ALTERNATIVE PROJECTS
Mission to Wilsall

ALTERNATIVE PROJECT	PROJECT COST	PRESENT VALUE(1) Benefit	Cost (000's)	Net	BENEFIT/COST RATIO
Rehabilitation	$2,664.6	$2,881.1	$5,232.6	$-2,351.5	0.55
Acquisition	297.0	1,988.5	2,865.0	- 876.5	0.69
Acquisition/Rehabilitation	2,961.6	2,927.5	5,529.6	-2,602.1	0.53

(1) Discount rate - 4 percent.
Project life - 10 years.

SOURCE: Wilbur Smith and Associates.

MONTANA CITY TO BASIN
Burlington Northern Railroad

This branch line lies in Jefferson County and extends approximately 34 miles south of Montana City to Basin. The line is out of service because of severe damage caused by a flood, and the railroad has filed for abandonment. Prior to the flood the principal traffic was nonmetallic minerals from Basin. The location of the line is presented in Figure 5-15.

The status and issues on this line are as follows:

- Line was approved for abandonment effective August 2, 1982.
- Line has been out of service for over a year due to flood damage.
- Major user has switched to truck; User Survey indicates only 3 years of inventory are left.
- Construction of I-15 in Basin area has covered over a segment of the line.

Rail Use

Prior to the washout in May 1981, this line handled primarily nonmetallic minerals as summarized in Table 5-15.1. All of the former major rail traffic has been switched to truck for a haul to a rail siding in Butte. Table 5-15.2 lists the former rail users.

Rail Service

There has been no rail service on this line since May, 1981. Therefore, the only railroad costs associated with this line are the opportunity costs of the net liquidation value and property tax. The railroad's estimates of these costs is approximately $287,400 annually.

TABLE 5-15.1
RAILROAD USE STATISTICS - 1980
Montana City to Basin

STATION	CARLOADS Number	CARLOADS Percent	TONS Number	TONS Percent	COMMODITY
			Originating		
Basin	360	99.4	28,362	99.7	Nonmetallic Minerals
			Terminating		
Boulder	2	0.6	97	0.3	Fabricated Metal Products
Total Traffic	362	100.0	28,459	100.0	

1980 Statistical Summary

Length: 33.6 miles
Million Gross Ton-Miles Per Mile: 0.048
Carloads Per Week: 7.0
Carloads Per Mile: 10.8
Revenue: $483,949

Traffic Volume History

1976 - 495
1977 - 671
1978 - 473
1979 - 588
1980 - 362

SOURCE: Burlington Northern Railroad
Montana Department of Commerce

TABLE 5-15.2
FORMER RAILROAD USERS
Montana City to Basin

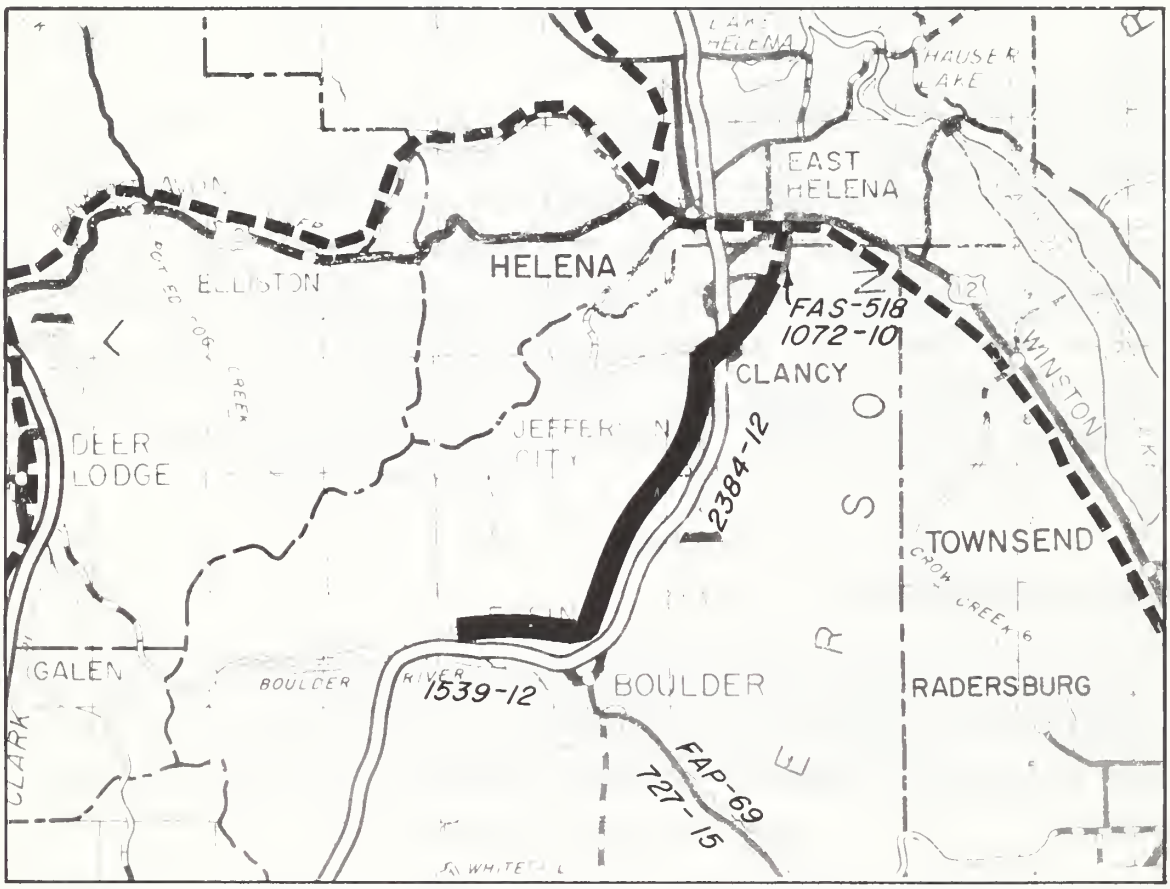
NAME	STATION	SIDING(1)	COMMODITY
COP Construction	Boulder	T	Fabricated Metal Products
Pacific Silica	Basin	P	Nonmetallic Minerals

(1) P - Private or leased siding on premises.
T - Team track

SOURCE: Burlington Northern Railroad
Montana Department of Commerce

MONTANA CITY - BASIN

RAILROAD : BURLINGTON NORTHERN
LENGTH : 33.6 MILES
COUNTIES : JEFFERSON
STATUS : ABANDONED



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MILES

LEGEND

- SUBJECT LINE
- OTHER LINES IN THIS REPORT
- LINES PREVIOUSLY ANALYZED
- ALL OTHER LINES
- 325 - 12 1981 ADT - % TRUCK

FIGURE 5 - 15

Highways

The Montana City - Basin line is paralleled by Interstate Highway 15. A portion of the line is also paralleled by Federal Aid Secondary Highway 518 (FAS 518) as shown on Figure 5-15. Access from the Boulder and Basin areas to I-90 and the BN near Whitehall is provided by Federal Aid Primary Highway 69 (FAP 69). Traffic volumes for 1981 vary from 727 vehicles per day on FAP 69 to 2,384 vehicles per day on I-15.

Rail Inventory and Condition

Table 5-15.3 presents the details of an inspection of this line. Generally the segments that were not damaged in the flood are in good condition although the ties are only fair. However, several bridges are in need of replacement due to high water. Portions of the roadbed are also severely damaged or washed out. The net liquidation value of this line is $1,147,800 which includes $61,000 for land and $1,086,800 for track materials.

Rehabilitation Costs

These costs were not calculated by the Study Team because of the apparent lack of need to restore service. However, the BN has estimated that approximately $998,500 is needed to repair the damaged bridges and roadbed.

Effects of Abandonment

Railroad - The BN has formally received abandonment approval. Therefore, the assets which are in the line will be used elsewhere when the line is removed.

Rail Users - The principal shipper was forced to utilize trucks after the flood and intends to close once the current inventory is depleted.

TABLE 5-15.3
LINE FACILITIES CONDITION
Montana City to Basin

Mileposts -	223.4 to 256.95
Rail -	1.42 miles of 112 lb. rail, 32.13 miles of 90 lb.; 112 lb. rail in good condition, 90 lb. rail generally in good condition but with some battered rail ends; 4-hole 24-inch joints, few with quarter cracks noted on 90 lb. rail.
Ties -	Treated mixed hardwoods and softwoods, in fair condition.
Tie Plates and Rail Anchors -	Fully plated with single shoulder tie plates; varying numbers and types of rail anchors; evidence at scattered locations where ties skewing due to insufficient number or absence of rail anchors.
Ballast -	Cinders or fine stone chips; many locations where ballast has been washed out from tie cribs and from beneath ties as the result of flood.
Bridges -	Fifteen (15) totalling approximately 1,940 L.F.; several damaged by high water and must be replaced or placed on new piers and abutments.
Road Crossings -	Eight (8), three (3) paved, five (5) unpaved.
Roadbed/ Ditching -	Roadbed severely damaged or washed out by high water at many locations between Montana City and Clancy (MP 229.1); stream has also eroded portions of roadbed at scattered locations south of Clancy; roadbed and track has been covered by highway construction at MP 254.5.
Vegetation -	Track and roadbed generally clear.
Tunnels -	Two (2) tunnels; one (1) approximately 1.2 miles long at MP 241, stream over top near south end, leaking through brick ceiling; stream should be diverted if traffic restored and ceiling repaired; remainder of tunnel with concrete lining; second tunnel at MP 254.5 approximately 0.1 miles long blocked by highway construction.

Timetable Speed - Previously shown as 25 mph, track now out of service.

Restriction - 220,000 lb. maximum allowable gross weight prior to being damaged by flood.

Liquidation - $1,086,800 (materials), $61,000 (land).

SOURCE: Wilbur Smith and Associates
Burlington Northern Inc.
Railway Line Clearances, Vol. 191, 1981

Highways/Bridges. Interstate 15 in the area of the line is in good condition, is well maintained by the Montana Department of Highways, and therefore has no rehabilitation needs. Table 5-15.4 summarizes the needs of other highways in the area.

Conclusions

Since this line has been out of service for over a year, it appears that the existing rail user has already adapted to lost service. In addition, the mine will close when the current inventory is moved. Therefore, the State, which has only limited available funds, does not propose to utilize them to restore service to this line.

TABLE 5-15.4
AREA HIGHWAY AND BRIDGE NEEDS
Montana City to Basin

ROUTE	FROM	TO	LENGTH	ROADWAY NEEDS ($1000)	BRIDGE NEEDS ($1000)	AVERAGE COST PER MILE ($1000)
FAP 69	Boulder	Whitehall	38.4	$ 4,185	$ 292	$ 117
FAS 518	I-15	E. Helena	4.5	243	0	54

SOURCE: Montana Department of Highways
Morrison-Maierle, Inc.

RPT78/N

NEWLON JUNCTION TO RICHEY
Burlington Northern Railroad

This 45.4-mile branch line is in Richland and Dawson Counties as illustrated on Figure 5-16. Three stations are active, and they generate mainly farm products.

The status and issues of this branch line are summarized below:

- Light density line which has not been identified for possible abandonment; recently re-classified from Category II indicating a railroad study for potential abandonment was being conducted.
- Line in poor condition; service sometimes suspended in wet weather due to roadbed; BN considering a reduction of maximum weight limit.
- Facing increasing competition with 52-car facilities on BN northern main line.
- New grain subterminal at Circle could draw grain from this branch.
- Truck competition exists on line.

Rail Use

Farm products in 1980 accounted for 93 percent of all traffic on the line and for 100 percent of outbound traffic. Of the eight shippers/receivers on the line, the three shippers/receivers at Richey accounted for most (73 percent) of the line traffic. Fertilizer was the only inbound commodity on the line. The total 1980 traffic of 389 carloads was considerably lower than for other years for which data are available. Tables 5-16.1 and 5-16.2 summarize 1980 railroad use and user statistics.

Rail Service

Weekly service is provided on this line according to the BN. The line connects with the BNs main line just south of Sidney.

TABLE 5-16.1
RAILROAD USE STATISTICS - 1980
Newlon Jct. to Richey

STATION	CARLOADS Number	CARLOADS Percent	Tons Number	Tons Percent	COMMODITY
			Originating		
Lambert	74	19.0	6,377	19.1	Farm Products
Enid	21	5.4	1,810	5.4	Farm Products
Richey	267	68.6	23,008	68.8	Farm Products
			Terminating		
Lambert	10	2.3	885	2.6	Chemicals
Richey	13	3.4	1,151	3.4	Chemicals
	3	1.0	150	0.5	Lumber & Wood Products
	1	0.3	50	0.2	Other
Total Traffic	389	100.0	33,431	100.0	

1980 Statistical Summary

Length: 45.4 miles
Million Gross Ton-Miles Per Mile: 0.086
Carloads Per Week: 7.5
Carloads Per Mile: 8.6
Revenue: $1,301,126

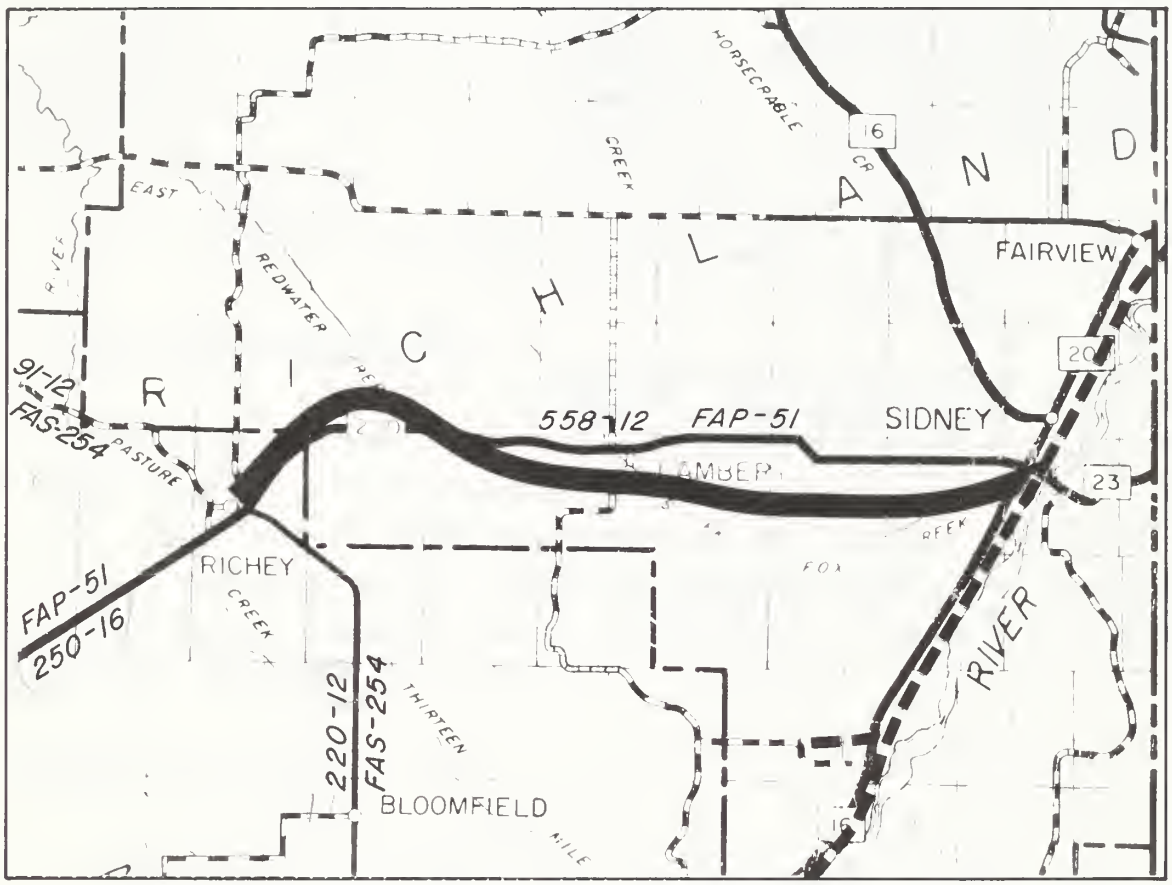
Traffic Volume History

1976	801
1977	450
1978	649
1979	865
1980	389

SOURCE: Burlington Northern Railroad
Montana Department of Commerce

NEWLON JCT. - RICHEY

RAILROAD : BURLINGTON NORTHERN
LENGTH : 45.4 MILES
COUNTIES : RICHLAND, DAWSON
STATUS : LIGHT DENSITY LINE



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MILES

LEGEND

SUBJECT LINE
OTHER LINES IN THIS REPORT
LINES PREVIOUSLY ANALYZED
ALL OTHER LINES
325-12 1981 ADT - % TRUCK

FIGURE 5-16

TABLE 5-16.2
RAILROAD USERS
Newlon Jct. to Richey

NAME	STATION	SIDING(1)	COMMODITY
Peavey Elevator	Richey	P	Farm Products
Farmers Union Trading Assoc.	Richey	P	Farm Products
Kenry Fertilizer	Richey	P	Chemicals
Enid Grain Co.	Enid	P	Farm Products
Cenex Soil Service Center	Lambert	P	Chemicals
Farmers Union Grain	Lambert	P	Farm Products
Prevost Elevator	Lambert	P	Farm Products
Lambert Grain, Inc.	Lambert	P	Farm Products

(1) P - Private or leased siding on premises.
T - Team track.

SOURCE: Burlington Northern Railroad
Montana Department of Commerce

The estimated net profit on this line in 1980 is approximately $172,000 as shown in Table 5-16.3. The line generated approximately $1.3 million in gross revenues. The principal on-branch cost component is the allowance for normalized maintenance.

Highways

Federal Aid Primary 51 parallels the line from Sidney to Richey and provides a route from Richey to Circle. A secondary highway, FAS 254 connects Richey with FAP 25 to Wolf Point to the northwest and with Glendive to the southeast. The highways, traffic volumes and surface types are shown on Figure 5-16. The highway distances to other rail stations are listed in Table 5-16.4.

Rail Inventory and Condition

The inspection of this branch line revealed that the track has lightweight rail in poor condition and crossties in fair condition. In addition, there are an inadequate number of rail anchors and tie plates. Finally, several locations have poor subgrade which causes problems in maintaining an adequate surface and alignment. Table 5-16.5 provides additional details.

Rehabilitation Costs

The condition of this line is insufficient to carry fully-loaded covered hoppers during the long term, and this condition is reflected in the estimated $5.1 million needed for rehabilitation. As shown the largest part of this cost is the rail, tie plates, labor and equipment.

Effects of Abandonment

Railroad - At the 1980 traffic level this line operated at a $172,000 profit, and the railroad would eliminate at least the on-branch component of the costs if they were to abandon the line. However, with the recent re-classification of the line from Category II status, it is likely that

TABLE 5-16.3
ESTIMATED REVENUES AND COSTS
Newlon Jct. to Richey

REVENUES ATTRIBUTABLE	YEAR 1980
1. Freight Originated and/or Terminated on Branch	$1,301,126
AVOIDABLE COSTS	
2. On-Branch Costs (Lines 2a through 2c)	$ 468,928
a. Maintenance of Way and Structures (Normalized)	362,701
b. Transportation	77,134
c. Freight Car Costs	29,093
3. Off-Branch Costs	612,000
4. Total Avoidable Costs (Line 2 plus Line 3)	$ 1,080,928
5. Avoidable Loss from Operations (Line 1 minus Line 4)	($ 220,198)(1)
6. Net Liquidation (Line 6a plus Line 6b)	$ 404,600
a. Materials	211,600
b. Land	193,000
7. Rate of Return	12.1%
8. Opportunity Cost Foregone (Line 6 times Line 7)	48,957
9. Total Avoidable Loss (Line 5 plus Line 8)	($ 172,241)(1)

(1) Parenthesis indicates gain.

SOURCE: Wilbur Smith and Associates

TABLE 5-16.4
DISTANCE TO SELECTED RAILROAD STATIONS
Newlon Jct. to Richey

TOWN	ALTERNATIVE RAIL STATION	RAILROAD	ROAD DISTANCE
Richey	Sidney	BN	46
	Glendive	BN	48
	Wolf Point	BN	51
Enid	Sidney	BN	29
Lambert	Sidney	BN	24

SOURCE: Wilbur Smith and Associates
Morrison-Maierle, Inc.

TABLE 5-16.5
LINE FACILITIES CONDITION
Newlon Jct. to Richey

Mileposts -	15.35 to 60.72
Rail -	23.67 miles of 77.5 lb. rail and 21.70 miles of 80 lb. rail, except for a small amount of 90 lb. rail through several road crossings; both 77.5 lb. and 80 lb. rail is worn and bent at many locations; numerous locations noted where joints have been applied where rails are broken or damaged; dutchman (broken rail plugs within joint area) noted in 80 lb. segment; joints are 24-inch, 4-hole.
Ties -	Treated mixed hardwoods and softwoods generally in fair condition; joint ties damaged where rail is running and has skewed ties.
Tie Plates and Rail Anchors -	Varying numbers of single shoulder tie plates averaging about 75% of those required; no rail anchors noted, a few segments with compression rail clips on 77.5 lb. rail; several locations where the rail is running and skewing the joint ties due to lack of rail anchors.
Ballast -	River gravel and dirt, scattered locations with small crushed stone over the gravel or dirt.
Bridges -	Forty-five (45) bridges totalling approximately 4,450 L.F.
Road Crossings-	Thirteen (13), five (5) paved, eight (8) unpaved.
Roadbed/ Ditching -	Roadbed generally adequate although narrow at a few locations; several locations with poor subgrade creating problems in maintaining track surface and alignment, several miles of track on causeway through lake area; no drainage problems noted.
Vegetation -	Track generally clean; low grass and weeds on right-of-way except some brush near Newlon Junction.
Timetable Speed -	20 mph
Weight Restrictions-	263,000 lbs. gross weight.
Net Liquidation-	$211,600 (materials), $193,000 (land).

SOURCES: Wilbur Smith and Associates
Burlington Northern Railroad
Railway Line Clearances, Vol. 191, 1981

TABLE 5-16.6
REHABILITATION COST ESTIMATE
Newlon Jct. to Richey

COST ITEM	COST
Rail, 100 lb. Relay (176 tons/mile x 45.37 miles) @ $275	$2,195,908
Joints, 100 lb. S.H. (270/mile x 45.37 miles) @ $10	122,499
Bolts and Nut Locks, New (1,080/mile x 45.37 miles) @ $2.00	97,999
Tie Plates, S.H. (6,000/mile x 45.37 miles) @ $2.75	748,605
Spikes, New (12,000/mile x 45.37 miles) @ $0.36	195,998
Rail Anchors, New (3,240/mile x 45.37 miles) @ $1.15	169,049
Crossties, New (600/mile x 45.37 miles) @ $17.00	462,774
Ballast (700 tons/mile x 45.37 miles) @ $3.75	119,096
Turnouts, #9, 100 lb. S.H. 8 @ $10,000	80,000
Unload Materials, 45.37 miles @ $2,800	127,036
Lay Rail, 45.37 miles @ $15,000	680,550
Install Turnouts, 8 @ $3,000	24,000
Timber and Surface, 45.37 miles @ $6,000	272,220
Work Road Crossings, 13 @ $2,000	26,000
Subtotal	$5,321,734
Less Value of Material Released	- 222,500
Total Rehabilitation Cost	$5,099,234

SOURCE: Wilbur Smith and Associates

the BN foresees an increased long term profitability in the operation. Therefore, it is possible that the question of abandonment is really moot.

Rail Users - Without this branch line, elevators and/or area farmers would have to switch to truck for at least part of the grain movements. The estimated incremental annual cost of an abandonment is $171,000 annually.

Highways/Bridges - FAP 51 which parallels the line from Richey to Sidney and also connects Richey with Circle is in good condition and needs very little rehabilitation and no reconstruction. However, major work is needed on FAP 25 to Wolf Point. Table 5-16.7 is a summary of the needs of principal highways in the area. Additional truck traffic generated by an abandonment would be approximately 5 trips per average day. Three of the daily trips would be in farm trucks, and the rest would be in tractor/semi-trailers.

Energy - It is anticipated that an abandonment would generate short haul trucking to alternate stations. The net difference in fuel usage would be 10,000 fewer gallons consumed annually due to relative fuel efficiencies of the two modes.

TABLE 5-16.7
AREA HIGHWAY AND BRIDGE NEEDS
Newlon Jct. to Richey

ROUTE	FROM	TO	LENGTH	HIGHWAY NEEDS ($1000)	BRIDGE NEEDS ($1000)	AVERAGE COST/ MILE ($1000)
FAP 51	Richey	Circle	27.5	$ 17	$ 0	$ 0.6
FAP 51	Richey	Sidney	32.7	0	0	0
FAS 254	Richey	FAP 25	25.2	2,054	284	93
FAP 25	FAS 254	Wolf Point	28.4	3,483	3,065	231
FAS 254	Richey	Glendive	43.8	992	37	23

SOURCE: Montana Department of Highways
Morrison-Maierle, Inc.

Alternatives Evaluated

Tables 5-16.8 and 5-16.9 list the results of an economic analysis of the only type of project for which this line is eligible.

Rehabilitation - Under this potential project, the line would be upgraded to FRP Class 2 (25 mph) and would be able to accommodate fully loaded 100-ton covered hoppers over the long term. Without replacement of the lightweight rail, a lower weight restriction could be imposed, and traffic would tend to divert to other lines. The benefit/cost ratio, 0.38, is relatively low because of the high cost of the option. However, with a 10-year present value of $3.4 million, the benefits of the potential project are significant.

Conclusions

This line is in a productive grain area, and the BN has apparently decided against abandonment which is some indication of the long term prospects for the branch. The line also has active shippers that would experience higher costs if the line were abandoned. Therefore, it is recommended that the line be considered for a project if it ranks sufficiently high in relation to other lines in this report.

TABLE 5-16.8
DISTRIBUTION OF BENEFITS
OF ALTERNATIVE PROJECTS
Newlon Jct. to Richey

BENEFIT TYPE	DESCRIPTION	ESTIMATED BENEFIT
	Rehabilitation Alternative	
Railroad	Annual cost savings on-branch.	$ - 517,774
	Annual cost savings off-branch.	0
Truck/User	Annual line haul and handling cost.	171,352
Other	Net salvage value of rehabilitation materials.	2,985,246

Note: Negative value indicates disbenefit to affected party.

SOURCE: Wilbur Smith and Associates.

TABLE 5-16.9
BENEFIT-COST ANALYSIS
OF ALTERNATIVE PROJECTS
Newlon Jct. to Richey

ALTERNATIVE PROJECT	PROJECT COST	PRESENT VALUE(1) Benefit	Cost (000's)	Net	BENEFIT/COST RATIO
Rehabilitation	$5,099.2	$3,416.1	$8,949.1	$-5,533.0	0.38

(1) Discount rate - 4 percent.
Project life - 10 years.

SOURCE: Wilbur Smith and Associates.

NICHOLS WYE TO BIG SKY
Burlington Northern Railroad

This 39-mile branch line, illustrated in Figure 5-17, runs south from the BN main line near Forsyth to a coal mining region in the Colstrip area of Rosebud County. The line is used to haul coal from several mine sites and carries a significant volume of traffic. In 1981 the traffic density was approximately 17.5 million gross ton-miles per mile which includes the weight of the coal as well as the rolling stock and locomotives.

This line is not eligible for assistance under this program because of the high density. However, the State of Montana has included the line in the 1982 update in order to document the present condition of the line. This line is one of two coal lines in the area. The other, Sarpy Jct. to Kuehn, is discussed later in this report.

Rail Inventory and Condition

The results of a brief inspection of the line are presented in Table 5-17.1 which indicates the line is in good condition but is experiencing wear due to the heavy loadings. The line is laid with heavy continuous welded rail with high quality alloy rail on some curves to reduce wear. The ties are in good condition as is the ballast and roadbed. The maximum gross weight of cars and lading is 263,000 pounds.

TABLE 5-17.1
LINE FACILITIES CONDITION
Nichols Wye to Big Sky

Mileposts -	0.0 to 40.5
Rail -	Approximately 40.5 miles of 112 lb. continuous welded rail (CWR) except for new 132 lb. Cromo (chrome/molybdenum alloy) rail recently laid on curves leading from main line; several engine burn fractures (EBF) noted with joint placed on them; some poor rail ends and worn rails near end of line in vicinity Big Sky.
Ties -	Treated mixed hardwoods in good condition; a few damaged ties noted where derailed car had scored ties in vicinity MP 7.0.
Tie Plates - and Rail Anchors	Fully plated with single shoulder and double shoulder tie plates; well anchored, every tie box anchored on curves, every third tie anchored on tangents.
Ballast -	Good rock ballast section.
Bridges -	Twenty-four (24) bridges, those observed appeared to be in very good condition.
Road - Crossings	Seven (7), four (4) paved, three (3) unpaved.
Roadbed/ Ditching -	Generally wide and well drained roadbed.
Vegetation -	Track clear of vegetation, right-of-way growth well controlled.

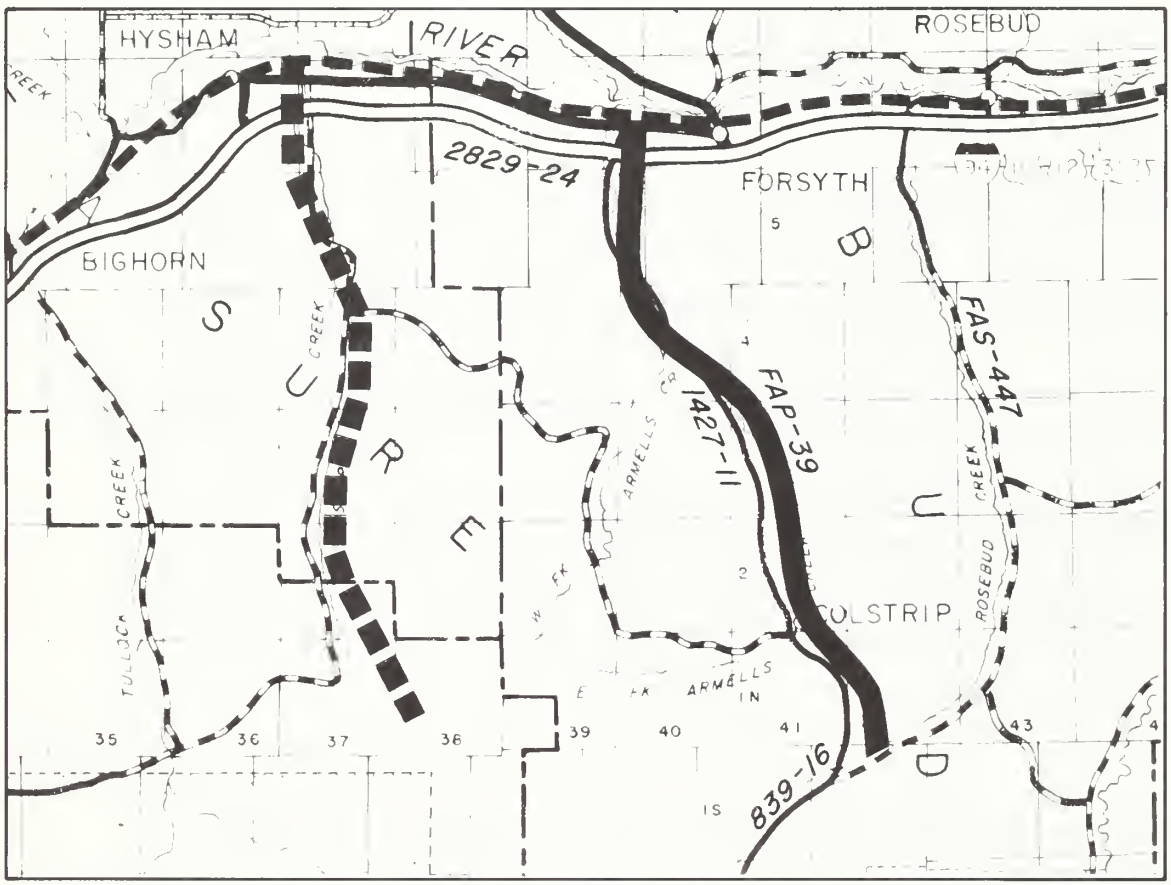
Timetable Speed - 25 mph

Weight Restriction - 263,000 lbs. gross weight

SOURCE: Wilbur Smith and Associates
Burlington Northern Railroad
Railway Line Clearances, Vol. 191, 1981

NICHOLS WYE - BIG SKY

RAILROAD : BURLINGTON NORTHERN
LENGTH : 39.1 MILES
COUNTIES : ROSEBUD
STATUS : COAL LINE



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MILES

LEGEND

SUBJECT LINE
OTHER LINES IN THIS REPORT
LINES PREVIOUSLY ANALYZED
ALL OTHER LINES
325-12 1981 ADT - % TRUCK

FIGURE 5-17

NORTH DAKOTA STATE LINE TO WHITETAIL
Soo Line Railroad

This 56.9 mile section from the North Dakota state line to Whitetail, Montana is the only Soo Line Railroad branch in Montana. Another 82 miles of the branch are in North Dakota. The line serves four stations in Montana. Figure 5-18 illustrates the location of the line.

The following is a summary of the status and issues affecting the line:

- Light density line which has not been identified for possible abandonment.
- Soo Line rates have been competitive with BN rates; Soo Line offers 26-car multiple origin rates.
- Elevators are independent but do take some advantage of multiple origin rates.
- Elevators compete with elevators on Bainville/Opheim branch to some extent although patterns are generally established.
- 52-car rates on BN main line do not appear to effect this branch.
- Active truck competition; elevators switch depending on rates.

Rail Use

All 1980 shipments on the line were outbound carloads of farm products with Outlook being the busiest station. There are a total of five shippers using the line, and they shipped 696 carloads according to the Rail User Survey. 1980 railroad use and user statistics are summarized in Tables 5-18.1 and 5-18.2.

Rail Service

This branch is the eastern portion of a 139-mile branch line extending from Flaxton, ND. Service is provided approximately once a week at a time-table speed of 20 mph for most of the line in Montana.

TABLE 5-18.1
RAILROAD USE STATISTICS - 1980
North Dakota State Line to Whitetail

STATION	CARLOADS Number	CARLOADS Percent	TONS Number	TONS Percent	COMMODITY
			Originating		
Whitetail	167	24.0	16,533	23.9	Farm Products
Outlook	259	37.2	25,641	37.2	Farm Products
Raymond	76	10.9	7,524	10.9	Farm Products
Westby	194	27.9	19,206	28.0	Farm Products
			Terminating		
None					
Total Traffic	696	100.0	68,904	100.0	

1980 Statistical Summary:
Length: 56.9 miles
Million Gross Ton-Miles Per Miles: 0.292 (1979)
Carloads Per Week: 13.4
Carloads Per Mile: 12.2
Revenue: $2,613,871

SOURCE: Montana Department of Commerce.

TABLE 5-18.2
RAILROAD USERS
North Dakota State Line to Whitetail

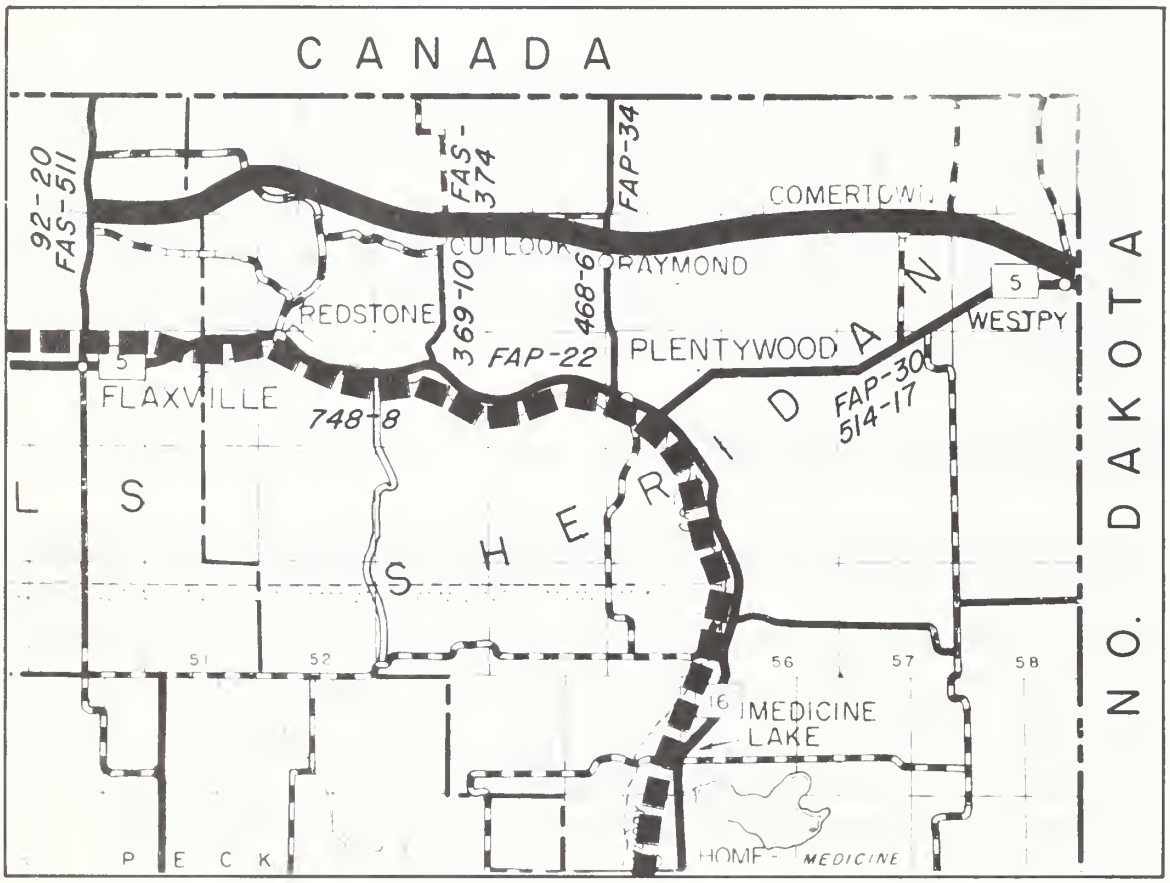
NAME	STATION	SIDING(1)	COMMODITY
Whitetail Grain Co.	Whitetail	P	Farm Products
Outlook Farmers Elevator	Outlook	P	Farm Products
Hass Farms	Outlook	P	Farm Products
Shermont Electric & Grain	Raymond	P	Farm Products
Farmers Grain & Trading Co.	Westby	P	Farm Products

(1) P - Private or leased siding on premises.
T - Team track.

SOURCE: Montana Department of Commerce.

NORTH DAKOTA STATE LINE - WHITETAIL

RAILROAD: SOO LINE
LENGTH : 56.9 MILES
COUNTIES: DANIELS, SHERIDAN
STATUS : LIGHT DENSITY LINE



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MILES

LEGEND

- SUBJECT LINE
- OTHER LINES IN THIS REPORT
- LINES PREVIOUSLY ANALYZED
- ALL OTHER LINES
- 325 - 12 1981 ADT - % TRUCK

FIGURE 5-18

The estimated revenue and cost of service on the Montana segment is presented in Table 5-18.3. The 1980 gross revenue, estimated from the Rail User Survey, was $2.6 million, and the cost was $ 1.7 million which includes both a normalized maintenance value and an opportunity cost of the land and materials. Therefore this line segment made a $961,000 profit in 1980.

Highways

Federal Aid Primary 22 and FAP 30 parallel the line 7 to 8 miles to the south. Federal Aid Secondary Highways 374 and 511 and FAP 34 provide access from stations on the line to FAP 22 and FAP 30. As shown on Figure 5-18, traffic volumes vary from 92 to 748 vehicles per day with up to 20 percent trucks. Other rail stations in the area are listed in Table 5-18.4 along with the highway distances.

Rail Inventory and Condition

The inspection results of this branch are detailed in Table 5-18.5. The line is constructed with lightweight rail, much of which has defective ends. However, the line and surface of the track is generally fair. The ties are also in fair condition. Some of the segments have poor subgrade, and the right-of-way is heavily washed in certain locations. Despite the lightweight rail and roadbed problems described in the table, the line operates at a weight limit sufficient to accommodate 100-ton covered hoppers.

Rehabilitation Costs

Since this line is composed of lightweight rail, the cost to rehabilitate the Montana segment of this branch is relatively high as detailed in Table 5-18.6. The total estimated rehabilitation cost is approximately $5.3 million with the major cost components being rail, tie plates, and the labor and equipment charges to install the heavier rail. This work would stabilize the line condition for the long term.

TABLE 5-18.3
ESTIMATED REVENUES AND COSTS
North Dakota State Line to Whitetail(1)

REVENUES ATTRIBUTABLE	YEAR 1980
1. Freight Originated and/or Terminated on Branch	$ 2,613,871
AVOIDABLE COSTS	
2. On-Branch Costs (Lines 2a through 2c).	$ 524,263
a. Maintenance of Way and Structures (Normalized)	355,397
b. Transportation	119,234
c. Freight Car Costs	49,632
3. Off-Branch Costs	1,044,157
4. Total Avoidable Costs (Line 2 plus Line 3)	$ 1,568,420
5. Avoidable Loss from Operations (Line 1 minus Line 4)	$(1,045,451)(2)
6. Net Liquidation (Line 6a plus Line 5b)	$ 701,200
a. Materials	425,200
b. Land	276,000
7. Rate of Return	12.1%
8. Opportunity Cost Foregone (Line 6 times Line 7)	84,845
9. Total Avoidable Loss (Line 5 plus Line 8)	$ (960,606)(2)

(1) Statistics relate only to Montana operations on this branch line.
(2) Parenthesis indicates gain.

SOURCE: Wilbur Smith and Associates.

TABLE 5-18.4
DISTANCE TO SELECTED
RAILROAD STATIONS
North Dakota State Line to Whitetail

TOWN	ALTERNATIVE RAIL STATION	RAILROAD	ROAD DISTANCE
Whitetail	Flaxville	BN	7
	Culbertson	BN	84
	Wolf Point	BN	73
Outlook	Plentywood	BN	18
	Culbertson	BN	65
Raymond	Plentywood	BN	7
	Culbertson	BN	54
Westby	Plentywood	BN	26
	Culbertson	BN	73

SOURCE: Wilbur Smith and Associates
Morrison-Maierle, Inc.

473,098

TABLE 5-18.5
LINE FACILITIES CONDITION
North Dakota State Line to Whitetail

Mileposts	-	620.05 to 676.94.
Rail	-	Approximately 4.5 miles of 60 lb. rail, 34.2 miles of 72 lb. rail, 18.2 miles of 80 lb. rail; numerous locations noted where joints have been applied to broken or defective rails; generally fair line and surface; joints 22-inch and 24-inch 4-hole, several noted with bolts out.
Ties	-	Treated mixed hardwoods, generally in fair condition, scattered locations where ties recently installed and track surfaced.
Tie Plates and Rail Anchors	-	Approximately 90% of ties have single shoulder plates; scattered locations with rail anchors only applied against direction of heaviest traffic; no significant problem with rail running noted.
Ballast	-	Cinders, dirt and scattered locations of gravel or crushed rock; west of MP 672 scattered locations where ballast unloaded heavily at washout sites.
Bridges	-	Five (5) bridges totalling approximately 600 L.F.
Road Crossings	-	Twenty (20), four (4) paved, sixteen (16) unpaved.
Roadbed/Ditching	-	Except for scattered locations of poor subgrade, no major roadbed or drainage problems east of MP 672, however from MP 672 to end of line a few locations of unstable roadbed and several locations where washouts have occured including heavy washing in deep cuts at heads of ties where track is on grades.
Vegetation	-	Track generally clear; only scattered locations of light grass or weeds; right-of-way growth generally cut or controlled.
Timetable Speed	-	35 mph between MP 620.05 and MP 632.6 20 mph between MP 632.6 and MP 676.94.
Weight Restriction	-	263,000 lbs. gross weight.
Net Liquidation	-	$425,200 (materials), $276,000 (land).

SOURCES: Wilbur Smith and Associates
Soo Line Railroad
Railway Line Clearances, Vol. 191, 1981

TABLE 5-18.6
REHABILITATION COST ESTIMATE
North Dakota State Line to Whitetail

COST ITEM	COST
Ditching, 4 miles @ $3,000	$ 12,000
Rail, 100 lb. Relay (176 tons/mile x 56.9 miles) @ $275	2,753,960
Joints, 100 lb. S.H. (270/mile x 56.9 miles) @ $10	153,630
Bolts and Nut Locks, New (1,080/mile x 56.9 miles) @ $2.00	122,904
Tie Plates, S.H. (6,000/mile x 56.9 miles) @ $2.75	938,850
Spikes, New (12,000/mile x 56.9 miles) @ $0.36	245,808
Rail Anchors, New (3,240/mile x 56.9 miles) @ $1.15	212,009
Turnouts, #9, 100 lb. S.H., 19 @ $10,000	190,000
Ballast (500 tons/mile x 56.9 miles) @ $3.75	106,687
Unload Material, 56.9 miles @ $1,800	102,420
Lay Rail, 56.9 miles @ $15,000	853,500
Install Turnouts, 19 @ $3,000	57,000
Surface and Line, 10 miles @ $2,500	25,000
Smooth and Line, 46.9 miles @ $1,250	58,625
Work Road Crossings, 20 @ $2,000	40,000
Subtotal	$5,872,393
Less Value of Material Released	- 542,000
Total Rehabilitation Cost	$5,330,393

SOURCE: Wilbur Smith and Associates

Effects of Abandonment

Railroad - The assets of this line could be used in other parts of the Soo Line system if this segment were abandoned. Based on the cost and revenue table presented earlier, the railroad would save the on-branch costs of approximately $609,000 per year without this line. However, the line is actually profitable, and an abandonment would cause a net loss of income.

Rail Users - Without this branch line, the shippers in this area would likely have to switch to truck, but some grain may divert to other rail stations. The estimated truck and barge costs of lost service are $1.7 million per year based on 1980 traffic.

Highways/Bridges - Table 5-18.7 is a summary of the needs of principal highways in the area. Approximately 5 grain truck trips and 4 farm truck trips per day would be generated by an abandonment.

TABLE 5-18.7
AREA HIGHWAY AND BRIDGE NEEDS
North Dakota State Line to Whitetail

ROUTE	FROM	TO	LENGTH	HIGHWAY NEEDS ($1000)	BRIDGE NEEDS ($1000)	AVERAGE COST PER MILE ($1000)
FAP 22	Flaxville	Plentywood	29.8	$ 3,418	$ 711	$ 139
FAP 30	Plentywood	North Dakota	24.2	3,736	328	168
FAP 34	Raymond	Plentywood	6.9	1,128	0	163
FAS 374	Outlook	FAP 22	6.7	260	21	42
FAS 511	Whitetail	Flaxville	6.6	483	80	85

SOURCE: Montana Department of Highways
Morrison-Maierle, Inc.

Energy - Since a significant volume of long haul trucking would be produced after an abandonment, the relative difference in fuel efficiencies would cause nearly 490,000 additional gallons of fuel to be consumed per year.

Alternatives Evaluated

Tables 5-18.8 and 5-18.9 list the economic evaluation of a rehabilitation project for this line. As a light density line, this is the only type of project for which the line is eligible.

Rehabilitation - The cost of this alternative is approximately $5.3 million since the lightweight rail is in need of replacement. The present value of project benefits is the net change in transportation costs that may occur if the line is abandoned. These benefits over a 10-year period are estimated at $16.0 million, and the net costs over the period are $13.4 million. The ratio of benefits to costs is 1.19.

Conclusions

The benefit/cost ratio of a potential rehabilitation project is over 1.0 due to the high benefits of the project. This branch is the only Soo Line property in the State, and its proximity to a BN branch provides at least some competition. Additionally, there are active rail users who would experience significant impacts of abandonment. For these two reasons, it is recommended that this branch be considered for a project if it ranks sufficiently high in relation to other potential projects.

RRPlan2/A

TABLE 5-18.8
DISTRIBUTION OF BENEFITS
OF ALTERNATIVE PROJECTS
North Dakota State Line to Whitetail

BENEFIT TYPE	DESCRIPTION	ESTIMATED BENEFIT
	Rehabilitation Alternative	
Railroad	Annual cost savings on-branch.	$ - 609,108
	Annual cost savings off-branch.	- 478,098
Truck/User	Annual line haul and handling cost.	1,740,379
Barge/User	Annual cost.	71,717
Other	Net salvage value of rehabilitation materials.	3,594,583

Note: Negative value indicates disbenefit to affected party.

SOURCE: Wilbur Smith and Associates.

TABLE 5-18.9
BENEFIT-COST ANALYSIS
OF ALTERNATIVE PROJECTS
North Dakota State Line to Whitetail

ALTERNATIVE PROJECT	PROJECT COST	PRESENT VALUE(1) Benefit	Cost (000's)	Net	BENEFIT/COST RATIO
Rehabilitation	$5,330.4	$15,999.0	$13,414.1	$2,584.9	1.19

(1) Discount rate - 4 percent.
Project life - 10 years.

SOURCE: Wilbur Smith and Associates.

RRPlan2/A

PHOSPHATE SPUR

Burlington Northern Railroad

The Phosphate Spur is approximately 5 miles long and is located 8 miles from Garrison in Powell County. The only traffic on this line is loaded approximately 1 mile north of the connection with the BN's main line. The rest of the line is out of service. Figure 5-19 illustrates the location of the Spur.

The status and issues for the Phosphate Spur can be summarized as follows:

- The 3.6 miles north of the existing loading site is in Category I which means that the BN intends to abandon that segment within 3 years.
- Category I segment out of service, but first mile of the line handles a large volume of traffic.
- Out-of-service portion used to serve a phosphate mine which has been closed for 5 years. Mine site still has reserves which are currently not economical to mine.
- Current loading activity at Milepost 1 from another truck-served mine.

Rail Use

Approximately 2,200 carloads of phosphate rock were handled in 1980 at the current loading site as listed in Table 5-19.1. The line segment which carries this traffic is not currently in danger of abandonment. Table 5-19.2 lists the only shipper.

Rail Service

This short spur connects with the BN's main line which runs to Sandpoint, ID. The service frequency for the loading site was not available but would have to be sufficient to handle approximately 2,200 cars per year. The portion of the line that may be abandoned is not used.

TABLE 5-19.1
RAILROAD USE STATISTICS - 1980
Phosphate Spur

STATION	CARLOADS Number	CARLOADS Percent	TONS Number	TONS Percent	COMMODITY
			Originating		
Milepost 1.0	2,200	100.0	220,000	100.0	Nonmetallic Minerals
			Terminating		
None	____	____	____	____	
Total Traffic	2,200	100.0	220,000	100.0	

1980 Statistical Summary

Length: 3.5 miles
Million Gross Ton-Miles Per Mile: 0.339
Carloads Per Week: 42.3
Carloads Per Mile: 2,200

Traffic Volume History (Estimated)

1976	1,900
1977	1,900
1978	1,900
1979	1,900
1980	2,200

NOTE: This traffic would not be affected by a potential abandonment.

SOURCE: Burlington Northern Railroad
Montana Department of Commerce

TABLE 5-19.2
RAILROAD USERS
Phosphate Spur

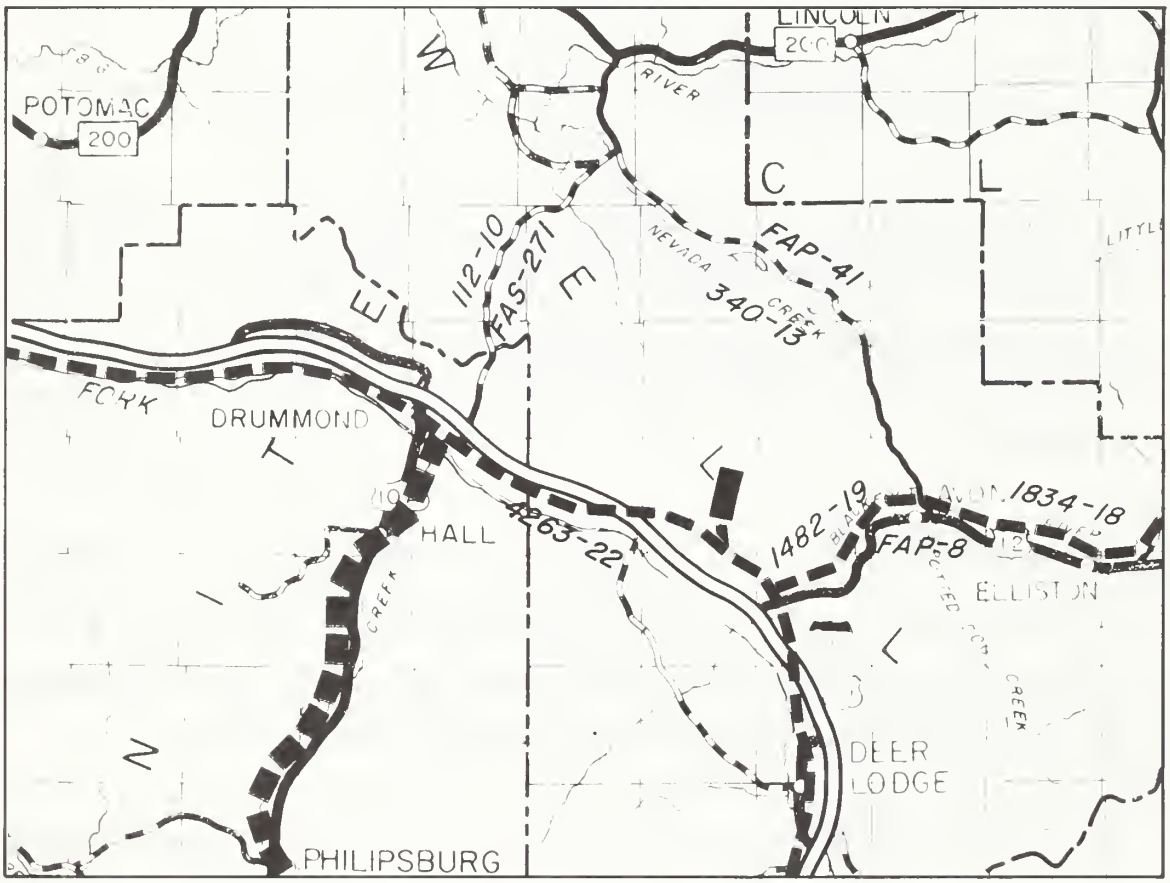
NAME	STATION	SIDING(1)	COMMODITY
Cominco	Milepost 1	P	Nonmetallic Minerals

(1) P - Private or leased siding on premises.
T - Team track

SOURCE: Burlington Northern Railroad
Montana Department of Commerce

PHOSPHATE SPUR

RAILROAD : BURLINGTON NORTHERN
LENGTH : 3.6 MILES
COUNTIES : POWELL
STATUS : POTENTIAL ABANDONMENT - CATEGORY I



0 10 20 30

MILES

LEGEND

- SUBJECT LINE
- OTHER LINES IN THIS REPORT
- LINES PREVIOUSLY ANALYZED
- ALL OTHER LINES
- 325 - 12 1981 ADT - % TRUCK

FIGURE 5 - 19

Highways

Access to Interstate 90 and the BN main line from the subject line is provided by a paved county road. Figure 5-19 illustrates the locations and traffic volumes of other primary and secondary highways. As indicated on the figure, I-90 had an ADT of 4,263 vehicles per day with 22 percent trucks. None of the existing truck traffic to the loading site uses the Interstate.

Rail Inventory and Location

The Phosphate Spur is composed of heavy rail with the portion still in service exhibiting curve wear and poor rail ends. The remainder also has some poor rail ends. Ties on the line are generally in fair condition. The timetable speed is 20 mph, but most of the line is out of service. The estimated net liquidation value of the segment that may be abandoned is $322,200.

Rehabilitation Costs

Since the segment that may be abandoned is out of service due to lack of traffic, no rehabilitation costs were developed. However, restoration of service could be accomplished with minimal expenditures.

Effects of Abandonment

Railroad - The 3.6 miles that is in Category I is not being used; therefore, the BN could utilize these assets ($322,200) elsewhere if the line were abandoned. The first mile of the line will continue to be served.

Rail Users - The only rail user on the Phosphate Spur trucks its product from an off-line mine site. This traffic therefore would not be affected by an abandonment. However, the company's mine at the end of the line could be reopened as higher grade material is depleted at other sites. The rail user survey did not reveal any projected reopening date.

TABLE 5-19.3
LINE FACILITIES CONDITION
Phosphate Spur

Mileposts -	0.0 to 4.7 (out of service beyond MP 1.1)
Rail -	Approximately 0.5 miles of 115 lb. rail, 3.7 miles of 131 lb. rail, and 0.5 miles of 100 lb. rail; 115 lb. rail at main line is in fair condition, 131 lb. rail within the heavily used segment near main line is curve worn and with poor rail ends, remaining portion of 131 lb. is generally good except for scattered segments with poor rail ends or curve worn rail that has been transposed.
Ties -	Treated mixed hardwoods and softwoods in fair condition.
Tie Plates - and Rail Anchors	Fully plated, with both double shoulder and single shoulder plates; rail anchors throughout, generally adequate; slight evidence of rail running on heavier grades.
Ballast -	Rock over dirt, scattered locations of rock over screenings.
Bridges -	One (1) bridge at main line.
Road Crossing-	One (1) paved.
Roadbed/ Ditching -	Roadbed width adequate; no significant drainage problems noted except a rock slide on one side of a short cut in segment now out of service.
Vegetation -	Track and roadbed clear of vegetation between main line connection and point where track has been taken out of service (approximately MP 1.1); from this point to the end scattered light weeds and grass in track and on roadbed.

Timetable Speed - 20 mph (out of service beyond MP 1.1)

Restrictions - 263,000 lbs. gross weight

Net Liquidation - $316,200 (materials), $6,000 (land) for segment that that may be abandoned.

SOURCE: Wilbur Smith and Associates
Burlington Northern Railroad
Railway Line Clearances, Vol. 191, 1981

Highways/Bridges - The current loading activity at Milepost 1 is the result of the mining activity at an off-line site. Therefore this truck traffic is unaffected by the abandonment and is the result of an external factor, the closure of the mine at the end of the line. For this reason, there is no highway or bridge impact of abandonment.

Alternatives Evaluated

Since this line is out of service due to a mine closure, the only appropriate alternative to consider is the rail banking (acquisition) of the line for future use.

Acquisition - Tables 5-19.4 and 5-19.5 summarize the results of the analysis of this alternative. For this analysis, it is assumed that the shipper would have to truck 4 miles to the existing loading site unless the line were in service. Also assumed is that the mine would generate volumes similar to the existing site. As shown in the table, the cost of this alternative is the net liquidation value of $322,200. The present value of costs is $2.8 million, and the benefits are the truck and salvage costs of $12.3 million on a present value basis. The ratio of benefits to costs therefore is 4.35.

Conclusions

The analysis discussed above indicates that rail banking is reasonable only if there can be a fair indication of when the mine might reopen. Since this action may happen only after higher grade material is mined from other locations, the reopening must be considered speculative. Therefore, it is recommended that funds available to this program not be committed to this line.

RPT9/J

TABLE 5-19.4
DISTRIBUTION OF BENEFITS
OF ALTERNATIVE PROJECTS
Phosphate Spur
Potential Traffic Level

BENEFIT TYPE	DESCRIPTION	ESTIMATED BENEFIT
	Acquisition Alternative(1)	
Railroad/ Operator	Annual cost savings on-branch	$ - 336,388
	Annual cost savings off-branch	0
Truck/User	Annual line haul and handling cost	1,620,640
Other	Liquidation value of land	6,000
	Net salvage value of track materials	316,200

(1) Mine presently closed; mine assumed open at 2,200 cars for this analysis.

Note: Negative value indicates disbenefit to affected party.

SOURCE: Wilbur Smith and Associates.

TABLE 5-19.5
BENEFIT-COST ANALYSIS
OF ALTERNATIVE PROJECTS
Phosphate Spur

ALTERNATIVE PROJECT	PROJECT COST	PRESENT VALUE(1) Benefit	Cost (000's)	Net	BENEFIT/COST RATIO
Acquisition	$ 322.2	$12,276.4	$2,823.4	$9,453.0	4.35

(1) Discount rate - 4 percent.
Project life - 10 years.

SARPY JCT. TO KUEHN
Burlington Northern Railroad

The Sarpy Jct. to Kuehn branch line is the second of two coal lines which are described in this report. This branch is approximately 20 miles to the west of the Big Sky branch and is in Treasure and Big Horn counties. A smaller volume of coal is transported over this branch, but it still is nearly 8 million gross ton-miles per mile. Figure 5-20 illustrates this branch and other area transportation facilities.

Because of this high traffic density, the Kuehn branch is not eligible for assistance under this program. Its inclusion in this report is for information purposes only.

Rail Inventory and Condition

The Study Team conducted a brief inspection of this branch line as summarized in Table 5-20.1. Based on these limited observations, the line appears to be experiencing considerable wear due to the heavy tonnage. However, the line is laid with heavy continuous welded rail and has very gooc ties, ballast and other track components. Even though this branch carries less traffic than the Big Sky branch to the east, the Kuehn Branch has a 315,000 pound maximum gross weight limit which allows heavier wheel loadings than on the Big Sky branch which has a 263,000 pound maximum gross weight limit.

TABLE 5-20.1
LINE FACILITIES CONDITION
Sarpy Jct. to Kuehn

Mileposts -	0.0 to 37.4
Rail -	131 lb. continuous welded rail (CWR); some evidence of head mashing at several locations; some flaking and shelling on the gage corner; heavy gage face wear also on high rail; curvemaster rail recently laid on segment where track springs from main line; a few joints have been placed on CWR at points of defective or damaged rail.
Ties -	Treated mixed hardwoods in very good condition.
Tie Plates - and Rail Anchors	Fully plated with double shoulder plates; well anchored, every third tie box anchored on tangents, solid anchored on curves, hold down or anchor spikes also used on curves.
Ballast -	Good rock ballast section.
Bridges -	Seven (7) bridges, those observed appeared to be in very good condition.
Road - Crossings	Six (6), one (1) paved, five (5) unpaved.
Roadbed/ Ditching -	Generally wide well drained roadbed.
Vegetation -	Track clear of vegetation, right-of-way growth well controlled.

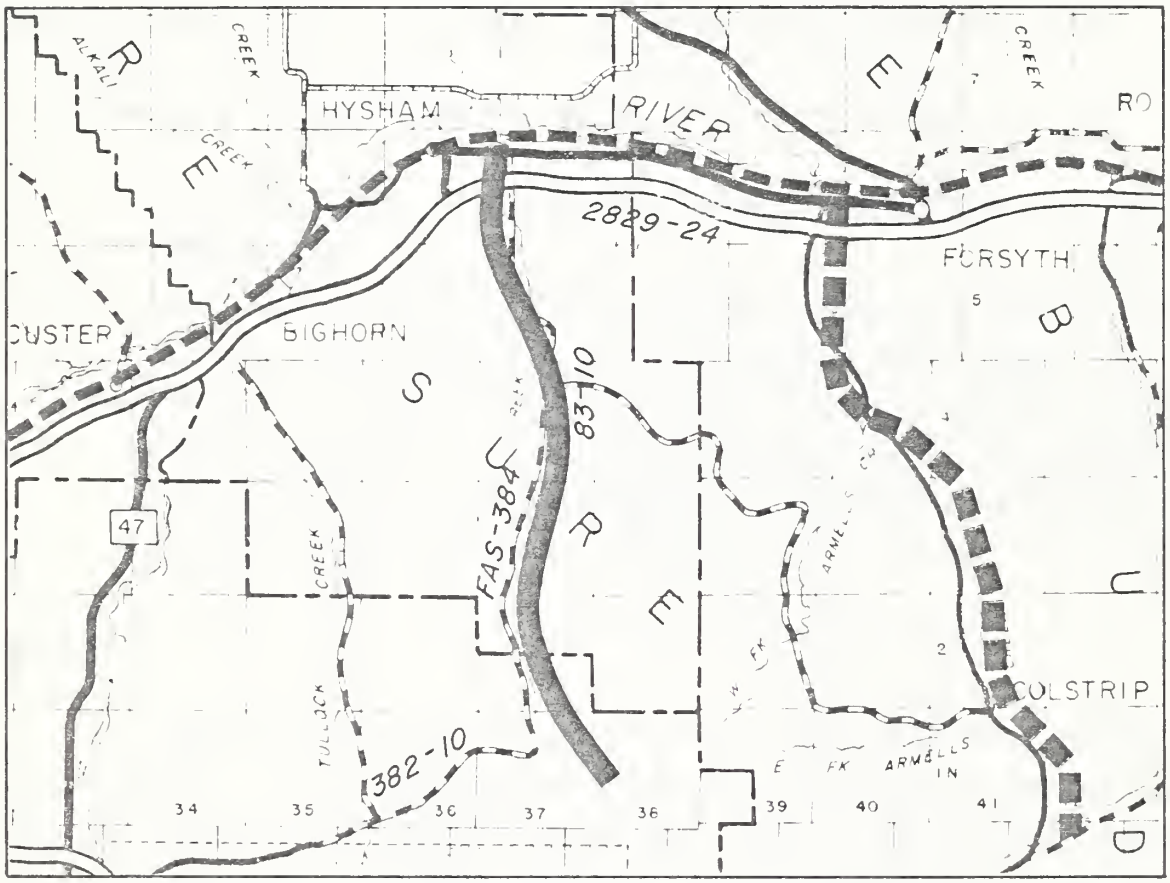
Timetable Speed - 40 mph

Weight Restriction - 315,000 lbs. gross weight

SOURCE: Wilbur Smith and Associates
Burlington Northern Railroad
Railway Line Clearance, Vol. 191, 1981

SARPY JCT. - KUEHN

RAILROAD: BURLINGTON NORTHERN
LENGTH : 35.9 MILES
COUNTIES: TREASURE, BIG HORN
STATUS : COAL LINE



0 10 20 30

MILES

LEGEND

SUBJECT LINE
OTHER LINES IN THIS REPORT
LINES PREVIOUSLY ANALYZED
ALL OTHER LINES
382-10 1981 ADT - % TRUCK

FIGURE 5-20

STRYKER TO EUREKA
Burlington Northern Railroad

The Stryker to Eureka branch is 23 miles long and runs parallel to the Tobacco River in Lincoln County. Once part of the BN main line, it has been reduced to a branch line after construction of the Libby Dam. This line is in a heavily forested area, and the principal rail traffic is lumber and wood products. Figure 5-21 indicates the location of this line.

A summary of the branch line status and issues follows:

- Light density line which has not been identified for possible abandonment.
- Only rail traffic is lumber and wood products. Wood chip rail traffic has shifted to truck since the rail user survey.
- Eureka is loading point for large volume of Canadian lumber.
- Major highway in area shows considerable wear. Observation of highway traffic was that large volume of wood chip trucks and log trucks use this facility at present.

Rail Use

As summarized in Table 5-21.1, all rail traffic in 1980 was lumber or wood products. The majority of the traffic was chips, nearly 800 carloads. However, according to the BN in June, 1982, most of this traffic has been lost to trucks since the 1980 base year. Field observations, on the other hand, indicated that a limited number of cars of green cross ties are now moving over the line. The crossties represent new traffic. There are three rail users located at two stations as listed in Table 5-21.2.

Rail Service

Adequate service for the volume of traffic appears to be provided on this line. At the time of the survey, service was three days per weeks, but it has now been reduced to weekly service with the loss of the wood chip traffic. The line generally operates at 25 mph.

TABLE 5-21.1
RAILROAD USE STATISTICS - 1980
Stryker to Eureka

STATION	CARLOADS Number	CARLOADS Percent	TONS Number	TONS Percent	COMMODITY
			Originating		
Fortine	568	27.5	22,720	20.1	Lumber & Wood Products
	658	31.9	51,258	45.4	Lumber & Wood Products
Eureka	700	33.9	28,000	24.8	Lumber & Wood Products
Eureka	140	6.8	10,906	9.7	Lumber & Wood Products
			Terminating		
None					
Total Traffic	2,066	100.0	112,884	100.0	

1980 Statictical Summary

Length: 23.2 miles
Million Gross Ton-Miles Per Mile: 0.266
Carloads Per Week: 41.8
Carloads Per Mile: 86.5
Revenue: $3,161,000

SOURCE: Burlington Northern Railroad
Montana Department of Commerce

TABLE 5-21.2
RAILROAD USERS
Stryker to Eureka

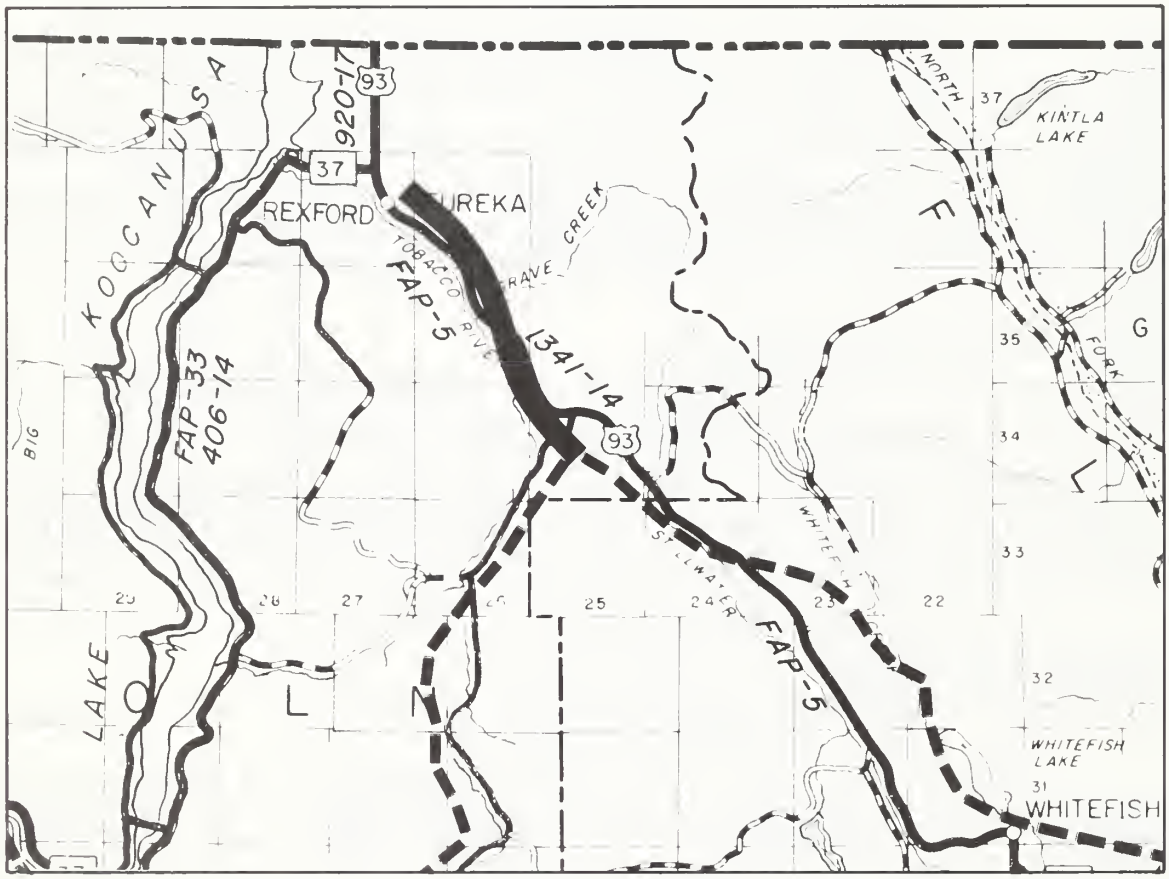
NAME	STATION	SIDING(1)	COMMODITY
Ksanka Lumber	Fortine	T	Lumber & Wood Products
Owens & Hurst Lumber	Eureka	T	Lumber & Wood Products
Gwynn Lumber	Eureka	P	Lumber & Wood Products

(1) P - Private or leased siding on premises.
T - Team track

SOURCE: Burlington Northern Railroad
Montana Department of Commerce

STRYKER - EUREKA

RAILROAD : BURLINGTON NORTHERN
LENGTH : 23.2 MILES
COUNTIES : LINCOLN
STATUS : LIGHT DENSITY LINE



0 10 20 30

MILES

LEGEND

- SUBJECT LINE
- OTHER LINES IN THIS REPORT
- LINES PREVIOUSLY ANALYZED
- ALL OTHER LINES
- 325-12 1981 ADT - % TRUCK

FIGURE 5-21

The estimated revenues and costs of service on this line are presented in Table 5-21.3 which indicates that the gross revenues in 1980 were over $3 million. However, 40 percent of this traffic has been diverted to trucking. At the 1980 level the net revenue (after costs) is estimated at $67,000.

Highways

The subject line is paralleled by Federal Aid Primary Highway 5 (FAP 5) with a 1981 traffic volume of 1,341 vehicles per day and 14 percent truck traffic as shown on Figure 5-21. FAP 33 provides access from the Eureka area to the BN main line near Libby. Distances to the closest alternate station at Stryker are listed in Table 5-21.4.

Rail Inventory and Condition

The Eureka branch is generally in good condition with heavy rail and an operating speed limit of 25 mph. The ties are also in good condition, and the line is well anchored. Table 5-21.5 provides additional details of the hy-rail inspection of this line.

Rehabilitation Costs

Except for some track and roadbed work necessary to remove two 12-mph speed restrictions caused by a soft roadbed, there is no rehabilitation required to maintain the 25-mph and 263,000 lb. gross weight capability on this line. The cost to improve the two areas mentioned above is estimated to be less than $10,000.

Effects of Abandonment

Railroad - Without this line, the railroad would lose approximately $67,000 because the line was profitable in 1980. If the BN has in fact lost the wood chip traffic to trucks, then the railroad would save at least some money. Marketing and rate practices will be important factors in determining if the railroad can recapture the wood chip business.

TABLE 5-21.3
ESTIMATED REVENUES AND COSTS
Stryker to Eureka

REVENUES ATTRIBUTABLE	YEAR 1980
1. Freight Originated and/or Terminated on Branch	$3,161,000
AVOIDABLE COSTS	
2. On-Branch Costs (Lines 2a through 2c)	$ 498,214
a. Maintenance of Way and Structures (Normalized)	154,489
b. Transportation	207,705
c. Freight Car Costs	136,236
3. Off-Branch Costs	2,432,745
4. Total Avoidable Costs (Line 2 plus Line 3)	$2,930,959
5. Avoidable Loss from Operations (Line 1 minus Line 4)	($ 230,041)
6. Net Liquidation (Line 6a plus Line 6b)	1,347,000
a. Materials	1,290,000
b. Land	57,000
7. Rate of Return	12.1%
8. Opportunity Cost Foregone (Line 6 times Line 7)	162,987
9. Total Avoidable Loss (Line 5 plus Line 8)	($ 67,054)(1)

(1) Parenthesis indicates gain.

SOURCE: Wilbur Smith and Associates

TABLE 5-21.4
DISTANCE TO SELECTED RAILROAD STATIONS
Stryker to Eureka

TOWN	ALTERNATIVE RAIL STATION	RAILROAD	ROAD DISTANCE (Miles)
Fortine	Stryker	BN	9
Eureka	Stryker	BN	21

SOURCE: Wilbur Smith and Associates
Morrison-Maierle, Inc.

TABLE 5-21.5
LINE FACILITIES CONDITION
Stryker to Eureka

Mileposts -	1249.39 to 1273.0
Rail -	23.61 miles of 110 lb. rail except for scattered locations of 112 lb. rail; 24-inch 4-hole joints; rail and joints generally in good condition, some corrugations and engine burns.
Ties -	Treated mixed hardwoods generally in good condition.
Tie Plates - and Rail Anchors	Fully plated with double shoulder tie plates; varying number of rail anchors, generally well anchored.
Ballast -	Crushed rock ballast, generally good section, a few locations where heavy amounts of ballast unloaded due to soft roadbed condition.
Bridges -	Five (5) bridges totalling 740 L.F., all in good condition.
Road - Crossings	Five (5), three (3) paved, two (2) unpaved.
Roadbed/ Ditching -	Roadbed width generally adequate although narrow at scattered locations; several locations where roadbed has settled on fills and is now operated with speed restrictions; no significant side drainage problems noted.
Vegetation -	Track and roadbed generally clear of vegetation; right-of-way growth well maintained.

Timetable Speed - 25 mph except for two 12 mph speed restriction at locations of soft roadbed.

Weight Restriction - 263,000 lb. gross weight

Net Liquidation - $1,290,000 (materials), $57,000 (land)

SOURCE: Wilbur Smith and Associates
Burlington Northern Railroad
Railway Line Clearances, Vol. 191, 1981

Rail Users - Without rail service, the existing users would be forced to switch to truck or to truck/rail moves. The wood chip traffic has already been diverted. The other traffic, lumber, is currently trucked to the railroad from other locations; therefore abandonment would cause an increase in line haul trucking costs but no increase in handling since the lumber is already transferred from trucks to rail cars. It is estimated that this additional cost would be approximately $102,000 annually.

Highways/Bridges - Federal Aid Primary Highway 33 (FAP 33) is in good condition and has very few rehabilitation needs. FAP 5 is in a less favorable condition due to the current volume of log and wood chip trucks. Table 5-21.6 summarizes current highway and bridge needs for area highways. The diversion of the current traffic would raise the average daily traffic for area roads by 14 vehicles.

TABLE 5-21.6
AREA HIGHWAY AND BRIDGE NEEDS
Stryker to Eureka

ROUTE	FROM	TO	LENGTH	ROADWAY NEEDS ($1000)	BRIDGE NEEDS ($1000)	AVERAGE COST PER MILE ($1000)
FAP 5	Whitefish	Lincoln Co. Line	29.2	$ 1,436	$ 0	$ 49
FAP 5	Lincoln Co. Line	Eureka	21.2	2,728	150	136
FAP 33	Libby	Eureka	66.9	2,265	1,291	53

SOURCE: Montana Department of Highways
Morrison-Maierle, Inc.

Energy - Fuel consumption would be reduced by approximately 9,000 gallons annually because branch line trains are less efficient than short haul trucking.

Conclusions

The line is in relatively good condition and is not in need of major work. Traffic has declined since the rail user survey, but a change in the economy could easily turn this around even if the wood chip traffic stays on truck. It is concluded that the Stryker to Eureka branch is an economically important line but that it is not in need of funding for projects eligible under this program.

THREE FORKS TO WHITEHALL
Burlington Northern

The 31.4-mile Three Forks to Whitehall line is in Jefferson and Gallatin counties and is part of a little used main line between Logan and Garrison. The majority of through traffic does not use this line because of another routing via Helena. The Three Forks/Whitehall line is illustrated in Figure 5-22.

A summary of the status and issues of this line follow:

- Recently re-designated from Category II to Category V which means that the BN is no longer studying the line for possible abandonment.
- Very little originating and terminating traffic; major traffic comes from Whitehall to Alder branch line which was also recently re-designated from Category II to V.
- Another branch from Sappington to Harrison connects with line and is potentially subject to abandonment within 3 years; very little traffic from this branch.
- Line is used to carry oversize loads via Butte since this route has fewer clearance restrictions than BN's more heavily used main lines.

Rail Use

A summary of the traffic on the Three Forks to Whitehall line is presented in Table 5-22.1. Of the 1,511 carloads carried over this line in 1980, only 9 originated or terminated on the line. Another 1,471 were interchanged at Whitehall from the Alder Branch. This amount is up from 756 carloads in 1979. In addition 31 cars came from the Harrison Branch. The major traffic on the line is nonmetallic minerals from the Alder Branch. Only two on-line railroad customers, listed in Table 5-22.2, were identified in the rail user survey. There are several other customers located on the two branches which feed this line.

Table 5-22.1
RAILROAD USE STATISTICS - 1980
Three Forks to Whitehall

STATION	CARLOADS Number	CARLOADS Percent	TONS Number	TONS Percent	COMMODITY
		Originating			
Whitehall	3	0.2	60	0.1	Cattle
		Terminating			
Whitehall	3	0.2	38	-	Machinery
	3	0.2	42	-	Electrical Equipment
		Interchange With Other Branch Lines			
Whitehall/ Alder	1,471	97.4	98,357	96.9	Nonmetallic Minerals, Farm Products, Chemicals Machinery, Farm Products, Lumber & Wood Products, Miscellaneous
Sappington/ Harrison	31	2.0	3,058	3.0	Farm Products
Total Traffic	1,511	100.0	101,555	100.0	

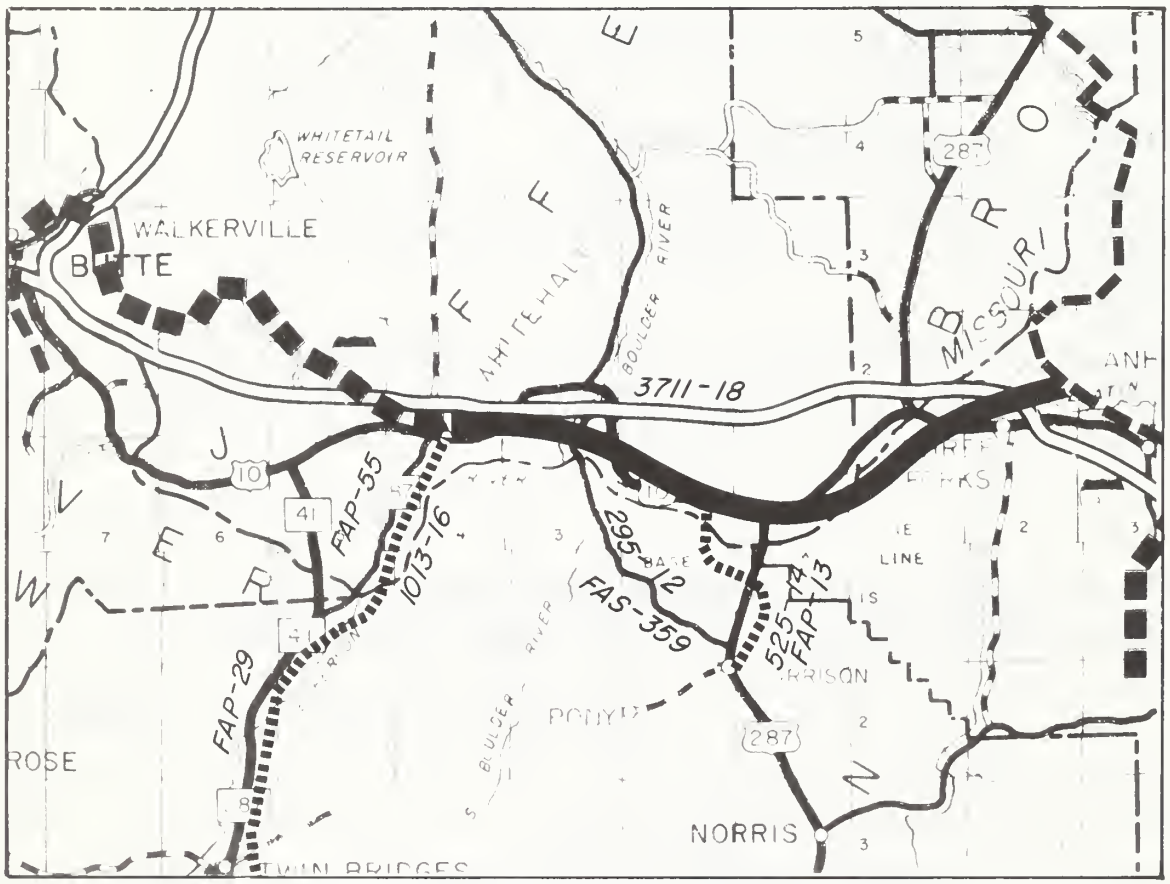
1980 Statistical Summary

Length: 31.4 miles
Million Gross Ton-Miles Per Mile: 0.297
Carloads Per Week: 29.1 (0.2 from originating and terminating traffic)
Carloads Per Mile: 48.1 (0.3 from originating and terminating traffic)
Revenue: $3,072,134 ($7,644 from originating and terminating traffic)

SOURCE: Burlington Northern Railroad
Montana Department of Commerce

THREE FORKS - WHITEHALL

RAILROAD : BURLINGTON NORTHERN
LENGTH : 31.4 MILES
COUNTIES : JEFFERSON, GALLATIN
STATUS : LIGHT DENSITY LINE



0 10 20 30

MILES

LEGEND

SUBJECT LINE
OTHER LINES IN THIS REPORT
LINES PREVIOUSLY ANALYZED
ALL OTHER LINES
325-12 1981 ADT - % TRUCK

FIGURE 5-22

TABLE 5-22.2
RAILROAD USERS
Three Forks to Whitehall

NAME	STATION	SIDING(1)	COMMODITY
Pehl Equipment	Whitehall	T	Machinery
Vigilante Co-op	Whitehall	T	Electrical Machinery

(1) P - Private or leased siding on premises.
T - Team track

SOURCE: Burlington Northern Railroad
Montana Department of Commerce

Rail Service

The timetable speed on this line is 50 mph which reflects its former main line status. Service to Whitehall and Alder is provided on the same run twice a week. The Harrison Branch has had no service in several months.

The cost to operate between Three Forks and Alder is presented in Table 5-22.3. Costs on the segment between three Forks and Whitehall is not applicable since it is used primarily for access to Alder. With revenues of over $3 million, these segments operated at a $85,261 gain in 1980. However, if a rate of return on the value of the assets is included, then the line lost $398,123 that year. This line segment is currently under study by AMTRAK and the State for possible future passenger service.

Highways

The Three Forks to Whitehall line is paralleled by Interstate 90 and FAP-13. FAS 359 also serves traffic in the area. Traffic volumes vary from 295 vehicles per day on the secondary highway to 3,711 vehicles per day on the interstate highway. Truck traffic is approximately 18% on the interstate. Figure 5-22 shows locations of the highways and their traffic volumes, and Table 5-22.4 lists alternate stations in the region.

TABLE 5-22.3
ESTIMATED REVENUES AND COSTS
Three Forks to Alder

	REVENUES ATTRIBUTABLE	YEAR 1980
1.	Freight Originated and/or Terminated on Branch	$ 3,072,134
	AVOIDABLE COSTS	
2.	On-Branch Costs (Lines 2a through 2c)	$ 997,263
	a. Maintenance of Way and Structures (Normalized)	559,559
	b. Transportation	286,081
	c. Freight Car Costs	131,623
3.	Off-Branch Costs	$ 2,009,610
4.	Total Avoidable Costs (Line 2 plus Line 3)	$ 2,986,873
5.	Avoidable Loss from Operations (Line 1 minus Line 4)	$ (85,261)(1)
6.	Net Liquidation (Line 6a plus Line 6b)	$ 3,994,910
	a. Materials	3,714,640
	b. Land	280,270
7.	Rate of Return	12.1%
8.	Opportunity Cost Foregone (Line 6 times Line 7)	483,384
9.	Total Avoidable Loss (Line 5 plus Line 8)	$ 398,123

(1) Paranthesis indicates gain.

NOTE: Assumes all revenue from Whitehall/Alder and Sappington/Harrison branches. Costs are for only the Three Forks/Whitehall and Whitehall/Alder lines.

SOURCE: Wilbur Smith and Associates

TABLE 5-22.4
DISTANCE TO SELECTED RAILROAD STATIONS
Three Forks to Whitehall

TOWN	ALTERNATE RAIL STATION	RAILROAD	ROAD DISTANCE
Whitehall	Three Forks	BN	31
	Butte	BN	30

SOURCE: Wilbur Smith and Associates
Morrison-Maierle, Inc.

Railway Inventory and Condition

A summary of a hy-rail vehicle inspection of the Three Forks to Whitehall line is contained in Table 5-22.5. This line operates at 50 mph and has a maximum allowable weight of 315,000 pounds for cars and lading. The line has heavy rail in generally good condition, and the ties are also in good condition. In addition the track is heavily anchored.

Rehabilitation Costs

As discussed above, this line is in good condition and is not in need of rehabilitation because the traffic level is relatively low, even with the inclusion of the Whitehall to Alder branch.

Conclusions

This line is in good condition and does not need any rehabilitation. It is used primarily for access to the Alder Branch, and it is estimated that the operation is marginally profitable (Only the return on value element turns the results unprofitable). Therefore it is concluded that this line has little need for funding under this program.

TABLE 5-22.5
LINE FACILITIES CONDITION
Three Forks to Whitehall

Mileposts -	7.80 to 39.20
Rail -	8.4 miles of 100 lb., 10.1 miles of 112 lb., 8.6 miles of 115 lb., 4.3 miles of 132 lb.; two curves laid with continuous welded rail (CWR), remainder jointed rail; many scattered locations near turnouts with old engine burns; some curves with heads flattening on low rail, some corrugations; in general line and surface good; joints both 4-hole, 24-inch and 6-hole, 36-inch; generally 6-hole joints on 115 lb. and 132 lb. and 4-hole on 100 lb. and 112 lb.
Ties -	Treated mixed hardwoods and softwoods, generally in good condition; many ties have been installed in past two years.
Tie Plates - and Rail Anchors	Fully plated with single shoulder tie plates in 100 lb. rail and double shoulder plates in heavier rail; track is heavily anchored, segments at ends of CWR solid anchored for 8 rail lengths.
Ballast -	Good crushed rock ballast section especially in a few areas that were damaged in recent years by high water.
Bridges -	Eleven (11) totalling approximately 990 L.F.; one bridge, approximately 100 L.F., installed last year near MP 30 due to flood washing out roadbed.
Road - Crossings	Seven (7), two (2) paved, five (5) unpaved.
Roadbed/ Ditching -	Generally good roadbed section although some areas subject to high water; side drainage generally good, well maintained next to high rock cut; track protected by rock slide fence connected to signals.
Vegetation -	Track generally clean, only light grass in track and some weeds in toe line of ballast near Whitehall; scattered low brush on right-of-way.

Timetable Speed - 50 mph except for 10 mph speed restriction at MP 25.3.

Weight Restriction - 315,000 lbs. gross weight.

Net Liquidation - $2,603,700 (materials), $114,292 (land).

SOURCES: Wilbur Smith and Associates
Burlington Northern Railroad
Railway Line Clearances, Vol. 191, 1981

VALIER JCT. TO VALIER
Burlington Northern Railroad

Figure 5-23 illustrates the location of the Valier branch line in Pondera County. This 17-mile line is agriculturally oriented with the principal traffic being farm products and fertilizer.

The issues surrounding this line are:

- Light density which has not been identified for possible abandonment; prior to June, 1982 this line was in Category II, under study for possible abandonment.
- Part of line in poor condition with light weight rail; parts have been upgraded.
- Active consideration for 52-car unit grain train facility if line is upgraded.
- Active competition from other 52-car unit train facilities on main lines.

Rail Use

In 1980, the Valier branch generated 759 carloads of which 88 percent was outbound grain. The other principal traffic was fertilizer. Table 5-23.1 provides additional usage details. Four railroad customers were identified in the Rail User Survey as listed in Table 5-23.2.

Rail Service

This line connects with the BN's main line running from Great Falls to Shelby. Service is scheduled twice a week, and the time table indicates a maximum speed of 10 mph. Fully loaded covered hoppers were allowed on the line in 1980.

TABLE 5-23.1
RAILROAD USE STATISTICS - 1980
Valier Jct. to Valier

STATION	CARLOADS Number	CARLOADS Percent	TONS Number	TONS Percent	COMMODITY
		Originating			
Valier	670	88.3	52,662	86.6	Farm Products
		Terminating			
Valier	77	10.1	7,700	12.7	Chemicals
	12	1.6	480	0.8	Lumber & Wood Product
					Fabricated Metal Prod
Total Traffic	759	100.0	60,842	100.0	

1980 Statistical Summary

Length: 17.2 miles
Million Gross Ton-Miles Per Mile: 0.111
Carloads Per Week: 15.8
Carloads Per Mile: 43.9
Revenue: $2,006,756

SOURCE: Burlington Northern Railroad
Montana Department of Commerce

TABLE 5-23.2
RAILROAD USERS
Valier Jct. to Valier

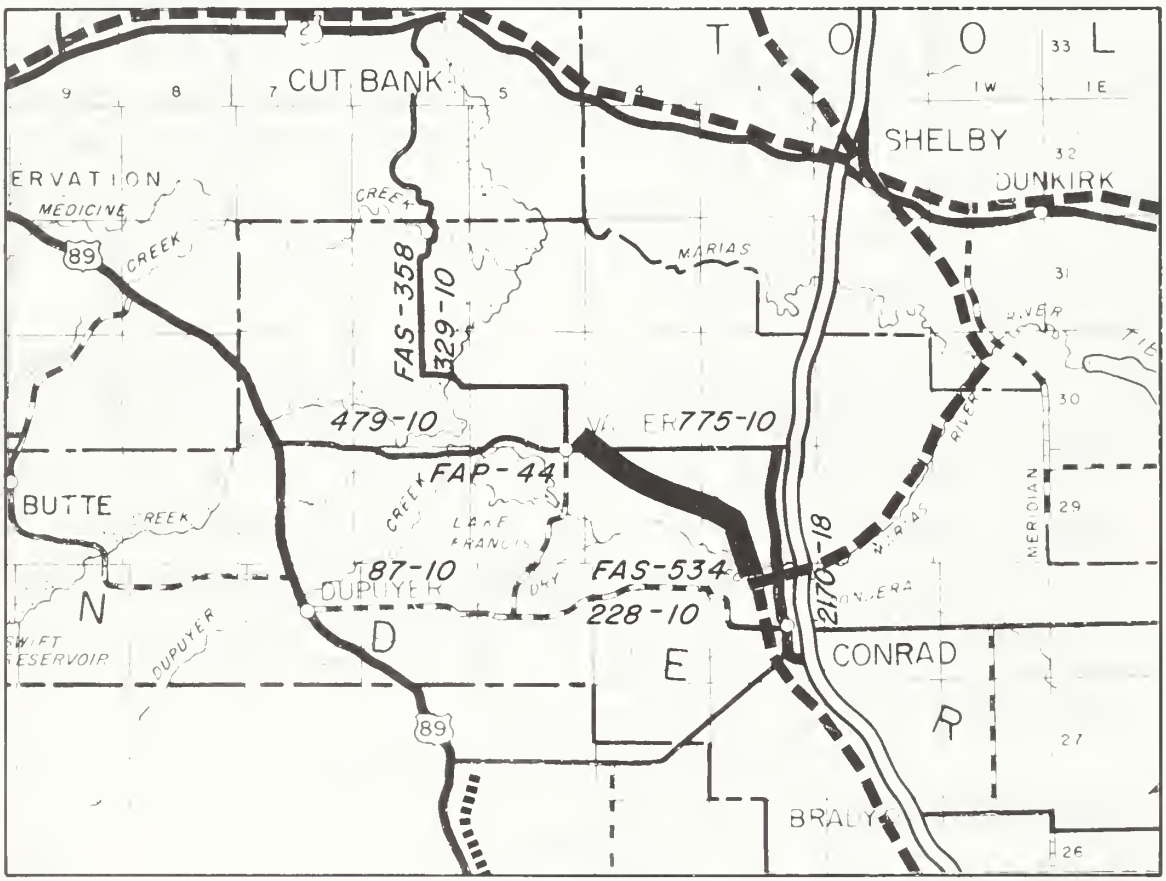
NAME	STATION	SIDING(1)	COMMODITY
Cargill	Valier	P	Farm Products
Devoe Builders Services	Valier	P	Lumber
Cenex Soil Service	Valier	P	Chemicals
GTA Elevator	Valier	P	Farm Products, Chemicals

(1) P - Private or leased siding on premises.
T - Team track

SOURCE: Burlington Northern Railroad
Montana Department of Commerce

VALIER JCT. - VALIER

RAILROAD : BURLINGTON NORTHERN
LENGTH : 17.2 MILES
COUNTIES : PONDERA
STATUS : LIGHT DENSITY LINE



0 10 20 30

MILES

LEGEND

SUBJECT LINE
OTHER LINES IN THIS REPORT
LINES PREVIOUSLY ANALYZED
ALL OTHER LINES
325-12 1981 ADT - % TRUCK

FIGURE 5-23

In 1980 this line generated $2.0 million in gross revenues and had a net gain of $0.9 million. Table 5-23.3 provides an estimate of the operating costs to carry the 1980 traffic.

Highways

Highways in the area which might be affected by an abandonment include Federal Aid Primary 44 (FAP 44), Federal Aid Secondary Highways 534 and 358 (FAP 534 and FAP 358) and Interstate Highway 15. 1981 ADT's vary from 87 vehicles per day on FAS 534 to 2,170 vehicles per day on I-15 as shown on Figure 5-23. Distances to alternative rail stations are summarized in Table 5-23.4.

Rail Inventory and Condition

An independent inspection of this branch line indicates that much of the line is in generally poor condition with lightweight rail. Some of the lighter weight rail has end defects. Heavier rail has been placed on segments near the Valier Jct. end. Ties are in fair condition for the first half of the line but are skewing on the other half. The line does have some scattered segments of poor soil, but no side drainage problems were noted during the inspection. A summary of the inspection is given in Table 5-23.5.

Rehabilitation Costs

The estimated cost to rehabilitate the Valier line to a stable 25-mph operation capable of carrying fully loaded covered hoppers is approximately $1,660,000. Major components of the cost include heavier relay rail, tie plates, and crossties. Table 5-23.6 provides additional details including an added cost for grading as determined by the Burlington Northern Railroad.

Effects of Abandonment

Even though this line was recently redesignated by the BN and is no longer under study for possible abandonment, the low traffic level is

TABLE 5-23.3
ESTIMATED REVENUES AND COSTS
Valier Jct. to Valier

	REVENUES ATTRIBUTABLE	YEAR 1980
1.	Freight Originated and/or Terminated on Branch	$2,006,756
	AVOIDABLE COSTS	
2.	On-Branch Costs (Lines 2a through 2c)	$ 245,050
	a. Maintenance of Way and Structures (Normalized)	109,392
	b. Transportation	87,421
	c. Freight Car Costs	48,237
3.	Off-Branch Costs	834,661
4.	Total Avoidable Costs (Line 2 plus Line 3)	$1,079,711
5.	Avoidable Loss from Operations (Line 1 minus Line 4)	($ 927,045)(1)
6.	Net Liquidation (Line 6 plus Line 6b)	$ 433,000
	a. Materials	172,000
	b. Land	261,000
7.	Rate of Return	12.1%
8.	Opportunity Cost Foregone (Line 6 times Line 7)	52,393
9.	Total Avoidable Loss (Line 5 plus Line 8)	($ 874,652)(1)

(1) Parenthesis indicates gain.

SOURCE: Wilbur Smith and Associates

TABLE 5-23.4
DISTANCE TO SELECTED RAILROAD STATIONS
Valier Jct. to Valier

TOWN	ALTERNATIVE RAIL STATION	RAILROAD	ROAD DISTANCE
Valier	Conrad	BN	24
	Cut Bank	BN	30

SOURCE: Wilbur Smith and Associates
Morrison-Maierle, Inc.

TABLE 5-23.5
LINE FACILITIES CONDITION
Valier Jct. to Valier

Mileposts -	0.0 to 17.24
Rail -	Approximately 4.0 miles of 60 lb., 3.0 miles of 70 lb., 2.7 miles of 77.5 lb., 4.6 miles of 80 lb., 2.0 miles of 90 lb., and 0.9 miles of 110 lb.; 60 lb., 70 lb. and 77.5 lb. rail generally in poor condition, some rail end breaks within joint area evidenced by "dutchman" in 60 lb., 70 lb., and 77.5 lb. rail; lighter weight rail being replaced with heavier rail starting at Valier Jct. working west; joints 4-hole 24-inch.
Ties -	Treated mixed hardwoods generally in fair condition between MP 0.0 and MP 9.0; from MP 9.0 to Valier joint ties have been damaged by rail running and skewing ties.
Tie Plates - and Rail Anchors	Fully plated with single shoulder plates in heavier rail (80 lb., 90 lb., and 110 lb.) and approximately 30% plated with single shoulder plates in 60 lb., 70 lb. and 77.5 lb.; generally no rail anchors with lighter weight rail, varying numbers of anchors on heavier weight being laid but generally adequate.
Ballast -	Pit run gravel with scattered segments of small crushed stone; ballast section generally better from Valier Jct. to MP 7.5., ballast fouled through areas of poor soil.
Bridges -	Two (2) bridges totalling approximately 240 L.F.; both in good condition except joint ties on bridge at MP 10.1 damaged by rail running; bridge at MP 0.8 built with steel pile bents.
Road - Crossings	Fourteen (14), four (4) paved, ten (10) unpaved.
Roadbed/ Ditching -	Scattered locations of poor soil on west end of line, generally better nearer Valier Jct.; no side drainage problems noted.
Vegetation -	Track generally clear; roadbed and right-of-way growth cut or controlled, mostly low grasses.

Timetable Speed - 10 mph.

Weight Restriction - 263,000 lb. maximum gross weight

Net Liquidation - $172,000 (materials), $261,000 (land)

SOURCE: Wilbur Smith and Associates
Burlington Northern Railroad
Railway Line Clearances, Vol. 191, 1981

TABLE 5-23.6
REHABILITATION COST ESTIMATE
Valier Jct. to Valier

COST ITEM	COST
Rail, 100 lb., Relay (176 tons/mile x 14.3 miles) @ $275	$ 692,120
Joints, 100 lb., S.H. (270/mile x 14.3 miles) @ $10	38,610
Bolts and Nut Locks, New (1,080/mile x 14.3 miles) @ $2.00	30,886
Tie Plates, S.H. (6,000/mile x 14.3 miles) @ $2.75	235,950
Spikes, New (12,000/mile x 14.3 miles) @ $0.36	61,776
Rail Anchors, New (3,240/mile x 14.3 miles) @ $1.15	53,282
Crossties New (700/mile x 8.3 miles) @ $17.00	98,770
Crossties New (400/mile x 6.0 miles) @ $17.00	40,800
Ballast (1,000 tons/mile x 14.3 miles) @ $3.75	53,625
Turnouts, #9, 100 lb. S.H., 9 @ $10,000	90,000
Unload Material, 14.3 miles @ $2,800	40,040
Lay Rail, 14.3 miles @ $15,000	214,500
Timber and Surface, 8.3 miles @ $7,000	58,100
Timber and Surface, 6.0 miles @ $4,400	26,400
Install Turnouts, 9 @ $3,000	27,000
Work Road Crossings, 14 @ $2,000	28,000
Subtotal	$ 1,789,861
Less Value of Materials Released	- 125,700
Total Rehabilitation Cost (WS&A)	$ 1,664,161

SOURCE: Wilbur Smith and Associates.

Added Grading Cost determined by BN Railroad	$ 539,160(1)
Total Rehabilitation Cost	$ 2,203,321

(1) The need and cost calculations for grading have been determined by the Burlington Northern Railroad.

sufficient reason to assess this possibility for project evaluation purposes.

Railroad - The BN had a net revenue of $0.9 million in 1980, and the recent reclassification of the line indicates the carrier's apparent long term interest in the line. Therefore, it is unlikely that the line would be abandoned.

Rail Users - The shipper surveys indicated that loss of service would cause many area farmers to truck to competitor facilities on the main lines. Other grain traffic would be diverted to long distance trucking and barge.

Highways/Bridges - Table 5-23.7 summarizes highway and bridge rehabilitation needs for principal highways in the area. I-15 is in good condition and has the capacity to accomodate traffic volumes significantly higher than present volumes. Other area facilities are currently in need of work with FAP 44 east and west of Valier requiring the greatest amount. An abandonment would cause a maximum increase of 3 vehicles per average day on individual roads in the area. The total increase on all roads is estimated at 2,582 annually or 7 trips per day of which 2 would be farm trucks and the remainder tractor trailer combinations.

TABLE 5-23.7
AREA HIGHWAY AND BRIDGE NEEDS
Valier Jct. to Valier

ROUTE	FROM	TO	LENGTH	ROADWAY NEEDS ($1000)	BRIDGE NEEDS ($1000)	AVERAGE COST PER MILE ($1000)
FAP 44	FAP 3	Valier	13.9	$1,973	$147	$153
FAP 44	Valier	I-15	14.5	2,267	0	156
FAS 358	Valier	Cut Bank	27.9	1,642	0	59
FAS 534	FAP 3	Co. Rd.	10.8	270	50	30
FAS 534	Co. Rd.	Conrad	18.2	143	50	11

SOURCE: Montana Department of Highways
Morrison-Maierle, Inc.

Energy - It is anticipated that the traffic diverted from this line after an abandonment would cause an increase in annual fuel consumption of 227,000 gallons. This increase is due mainly to the differences in fuel efficiencies of long haul train movements and truck movements.

Alternatives Evaluated

This line is eligible for a rehabilitation project as summarized in Tables 5-23.8 and 5-23.9.

Rehabilitation - The cost of this alternative is estimated at $2,203,321 as shown on Table 5-23.6. The benefits of the project are the incremental truck and barge transportation costs that are prevented from occurring by continued rail service. The total net present value of this alternative is $1.3 million and the benefit/cost ratio is 1.20.

TABLE 5-23.8
DISTRIBUTION OF BENEFITS
OF ALTERNATIVE PROJECTS
Valier Jct. to Valier

BENEFIT TYPE	DESCRIPTION	ESTIMATED BENEFIT
	Rehabilitation Alternative	
Railroad	Annual cost savings on-branch.	$ -297,442
	Annual cost savings off-branch.	-312,104
Truck/User	Annual line haul and handling cost.	887,967
Barge/User	Annual cost.	102,692
Other	Net salvage value of rehabilitation materials.	1,003,104

Note: Negative value indicates disbenefit to affected party.

SOURCE: Wilbur Smith and Associates.

TABLE 5-23.9
BENEFIT-COST ANALYSIS
OF ALTERNATIVE PROJECTS
Valier Jct. to Valier

ALTERNATIVE PROJECT	PROJECT COST	PRESENT VALUE(1) Benefit	Cost (000's)	Net	BENEFIT/COST RATIO
Rehabilitation	$2,203.4	$8,070.6	$6,735.6	$1,335.0	1.20

(1) Discount rate-4 percent.
Project life-10 years.

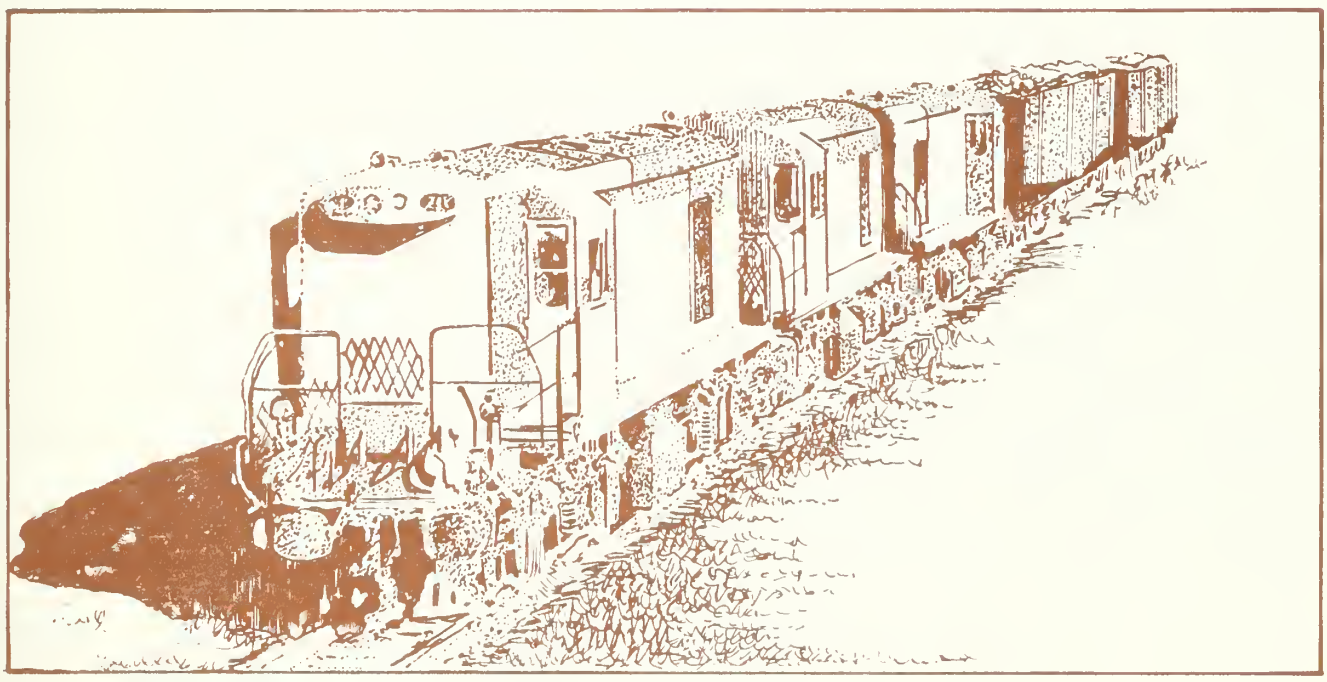
SOURCE: Wilbur Smith and Associates.

Conclusions

This branch line is in the grain triangle area which produces a significant amount of Montana's grain. Increasing competition will tend to divert grain to the main line unless this branch can be rehabilitated and the elevators can take advantage of the lower 52-car rates. In this case the BN has implied that it has a positive long term view of the line since it recently dropped its abandonment study. Based on the economic analysis and these other factors, it appears that the Valier branch should be ranked relatively high for funding purposes.

RPT9/K

PRIORITIES FOR PROJECT ASSISTANCE



CHAPTER 6

CHAPTER 6
PRIORITIES FOR PROJECT ASSISTANCE

The 1982 Update of the Montana Rail Plan has examined 21 rail lines which are eligible for project assistance under this program. The purpose of the evaluation is two-fold:

- Funds under this program are limited, and a priority system must be followed in order to allocate this scarce resource.

- Only lines which have been evaluated in the State Rail Plan or an Update can receive federal funds. (With the completion of this 1982 update, nearly every eligible line in the State will have been analyzed for project purposes.)

It must be emphasized that the purpose of Montana's Rail Plan and Updates is to evaluate potential projects. The purpose is not to determine priorities or recommendations for the retention or abandonment of rail lines. For this reason, this Update does not contain references or recommendations regarding the State policy concerning the abandonment of any line analyzed herein. However, for analytical purposes, the basic assumption of the analysis is that these lines might be abandoned in the future without corrective action. The corrective action that is evaluated in this Update is the use of federal funds. Other actions which were not evaluated but which could be taken include: increased usage from existing railroad customers, development of new industry requiring rail service, improved railroad service levels, and rate revisions to cover branch line costs.

Rail Line Statistical Summary

Chapter 5 contains the individual analyses of lines eligible for project assistance. Since each analysis is essentially a separate report, it is appropriate to compare the traffic and rail user information for these lines. This summary is presented in Table 6-1.

TABLE 6-1
LINE STATISTICAL SUMMARY

LINE/STATUS(1)	LENGTH	1980 NET REVENUE (000's)	1980 CARS	CARS/ MILE	RAIL USERS	MAJOR TRAFFIC
Bainville/Opheim - L	146.6	$ 1,007.7	2,889	19.7	32	Farm Products, Chemicals
Big Sandy/Fort Benton - I	199.3	(2)	75	1.8	1	Farm Products
Brazil Creek Spur - L	18.7	(2)	88	4.7	1(3)	Nonmetallic Minerals
Butte/Whitehall - I	28.8	(2)	0	0	0	None
Circle/Brockway - I	10.5	62.2	103	9.8	1	Farm Products
Columbia Falls/Somers - L	24.9(4)	1,094.0	3,537(5)	114.5	10	Farm Products, Lumber & Wood Products, Petroleum Products, Scrap
Dixon/Polson - L	33.4	-192.2	942	28.2	13	Lumber & Wood Products
Drummond/Philipsburg - L(7)	26.3	-285.8	86	3.3	3	Lumber & Wood Products
Durant/Brown - L	18.2	(8)	(8)	(8)	(8)	(8)
Fromberg/Bridger - I	6.1	-38.1	44	7.2	3	Farm Products, Chemicals
Glendive/Circle - L	53.7	72.4	739	13.8	8	Farm Products, Chemicals, Nonmetallic Minerals
Lavin Spur - L	4.4	(8)	66	15.0	1	Farm Products
Manhattan/Anceney - I	15.2	-38.2	116	7.6	5	Farm Products
Mission/Wilsall - I	22.9	135.2	405	17.7	3	Farm Products
Montana City/Basin-A(7)	33.6	(8)	362	10.8	1	Nonmetallic Minerals
Newlon Jct./Richey - L	45.4	172.2	389	8.6	8	Farm Products, Chemicals
Nichols Wye/Big Sky - C	39.1	(8)	(8)	(8)	(8)	Coal
N.D. Line/Whitetail - L	56.9	960.1	696	12.2	5	Farm Products
Phosphate Spur - I	3.6	0.0	0	0	0	None
Sarpy Jct./Kuehn - C	35.9	(8)	(8)	(8)	(8)	Coal
Stryker/Eureka - L	23.2	67.1	2,066	86.5	3	Lumber & Wood Products
Three Forks/Whitehall - L	31.4	398.1(9)	1,511(9)	48.1(9)	8(9)	Nonmetallic Minerals
Valier Jct./Valier - L	17.2	874.7	759	43.9	4	Farm Products, Chemicals

(1) I - Could be abandoned within 3 years
II - Under study by railroad
III - Abandonment decision pending
A - Abandoned
L - Light density line not potentially subject to abandonment
C - Coal line, not eligible for assistance but included for information
(2) Not meaningful
(3) Shipper closed temporarily
(4) Only first 14.4 miles has revenue traffic
(5) 1,888 cars are non-revenue BN company traffic.
(6) Revenue traffic over revenue segment
(7) Line out of service
(8) Not available
(9) Includes Whitehall/Alder branch

SOURCE: Chapter 5

Net Revenue - The table indicates that a significant number of lines appeared to be profitable in 1980. The most profitable lines were Valier Jct to Valier, Columbia Falls to Kalispell, both owned by the BN, and the only Soo Line branch in the State. This analysis is generally based on railroad-provided gross revenue and Study Team estimates of on-branch operating cost and return on assets. Off-branch costs were either provided by the carrier or estimated by the Team. The Bainville to Opheim line is shown as profitable when adjusted revenues are taken into account.

Rail Traffic - The table also indicates that the number of carloads and the number of cars per mile of track varied considerably in 1980. These lines carried between 0 and 2,889 carloads of revenue traffic that year. (One line from Kalispell to Somers carried a large amount of Burlington Northern company material which produces no revenue.) Lines which generated more than 500 carloads of revenue traffic include Bainville to Opheim, Columbia Falls to Kalispell, Dixon to Polson, Glendive to Circle, North Dakota State Line to Whitetail, Stryker to Eureka, and Valier Jct. to Valier.

A traditional performance measure for branch line is the number of carloads divided by the length of the line. In the absence of other data, this statistic gives at least some indication of the ability of the line to produce revenues sufficient to cover its operating costs and return on value. The lengths of these lines range from 3.6 to 146.6 miles. Except for certain lines which had no traffic or for which data was not available, the carload/mile values ranged 1.8 to 114.5.

Rail Users and Commodities. The number of rail users and types of traffic are also listed on the table. The most rail users are on the Bainville to Opheim Branch, which is also the longest line analyzed. All of the other branch lines have 10 or fewer customers except the Dixon to Polson branch which has 13. Two types of traffic are found on these lines. One major group of lines carries mainly farm products, fertilizers and farm machinery. The other group carries mainly lumber or wood chips.

Alternatives for Project Assistance

Different alternatives for project assistance were evaluated for these lines as summarized in Table 6-2. Only projects for which lines were eligible were analyzed. For example rehabilitation is generally the only option which can be applied to light density lines which have not been identified by the railroad for possible abandonment (Categories I, II, or III).

As shown in the table, the benefit/cost ratios of these projects range from very low to relatively high. Those projects with ratios greater than 1.0 and positive net present values would be considered as "good" projects in a strict economic sense since the benefits exceed the costs.

Priorities for Project Assistance

Because of the lack of sufficient funds to implement a project for each line, and in accordance with federal requirements and the State analytical methodology presented in Chapter 4, a ranking of lines for project assistance purposes is necessary. The State has ranked these lines for assistance purposes based on both quantitative and qualitative factors. This ranking is contained in Table 6-3.

Serious Consideration - Four branch lines are in the serious consideration category. One line from Bainville to Opheim has been subdivided primarily because of the high project cost, $9.3 million, to rehabilitate the entire 146-mile line. For both cases, the present value of project benefits are quite high if a project could prevent an eventual abandonment. However, the line is not in immediate danger of abandonment. The second highly ranked line, North Dakota State Line to Whitetail, is owned by the Soo Line Railroad. It also has significant quantitative project benefits in addition to providing at least some competition to the dominant railroad in the State. The third ranked line is the Valier Branch which was recently reclassified from a possible abandonment status, Category II. Project costs for this line are considerably lower than the first two lines. The

TABLE 6-2
SUMMARY OF PROJECT ALTERNATIVES

LINE/ALTERNATIVE	PRESENT VALUE(1) Benefit	Cost (thousands)	NPV	B/C
Bainville/Opheim				
Rehabilitation, Bainville to Scobey	$46,102.4	$28,965.1	$17,137.3	1.59
Rehabilitation, Scobey to Opheim	7,247.1	10,681.0	-3,433.9	0.68
Rehabilitation, Bainville to Opheim	50,952.4	39,001.9	11,950.5	1.31
Big Sandy/Fort Benton				
Rehabilitation	155.0	2,868.7	-2,173.7	0.05
Brazil Creek Spur(2)				
Acquisition	4,455.4	4,538.4	- 83.0	0.98
Substitute Service	3,194.4	3,877.8	- 683.4	0.82
Butte/Whitehall				
None evaluated				
Circle/Brockway				
Rehabilitation	283.5	1,242.0	- 958.4	0.23
Acquisition	532.2	1,420.9	- 888.8	0.37
Acquisition/Rehabilitation	508.6	1,607.3	-1,098.7	0.32
Columbia Falls				
None needed				
Dixon/Polson				
Rehabilitation	1,857.2	5,110.1	-3,252.9	0.36
Drummond/Philipsburg(2)				
Rehabilitation	499.3	3,175.6	-2,676.3	0.16
Acquisition	1,185.3	3,655.0	-2,469.7	0.32
Acquisition/Rehabilitation	1,196.3	4,167.6	-2,971.3	0.29
Acquisition, Drummond to Elephant Spur	4,321.1	4,694.3	- 373.2	0.92
Durant/Brown				
Durant/Anaconda				
None Needed				
Rehabilitation - Anaconda/Brown	0.0	693.6	- 693.6	0.00
Fromberg/Bridger				
Rehabilitation	211.1	717.4	- 506.1	0.29
Acquisition	339.1	751.7	- 412.5	0.45
Acquisition/Rehabilitation	344.7	907.4	- 562.7	0.38
New Construction	2,763.0	2,763.0	-1,906.4	0.31
Glendive/Circle				
Rehabilitation	7,021.2	7,533.2	- 512.0	0.93

TABLE 6-2 (Continued)

LINE/ALTERNATIVE	PRESENT VALUE Benefit	Cost (thousands)	NPV	B/C
Lavin Spur				
Rehabilitation	$ 163.0	$ 595.5	$ -432.5	0.27
Manhattan/Anceney				
Rehabilitation	2,543.2	3,755.7	-1,212.5	0.68
Acquisition	1,937.6	2,148.4	- 210.8	0.90
Acquisition/Rehabilitation	2,543.2	3,944.3	-1,401.1	0.64
Partial Abandonment, Rehabilitation	2,824.2	1,481.6	1,342.6	1.91
Partial Abandonment, Acqusition	2,557.2	773.0	1,784.2	3.31
Partial Abandonment, Aquisition/ Rehabilitation	2,838.4	1,564.7	1,273.7	1.81
Mission/Wilsall				
Rehabilitation	2,881.1	5,232.6	-2,351.5	0.55
Acquisition	1,988.5	2,865.0	- 876.5	0.69
Acquisition/Rehabilitation	2,927.5	5,529.6	-2,602.1	0.53
Montana City/Basin				
None				
Newlon Jct./Richey				
Rehabilitation	3,416.1	8,949.1	-5,533.0	0.38
Nichols Wye/Big Sky				
Not eligible for assistance				
N.D. Line/Whitetail				
Rehabilitation	15,999.0	13,414.1	2,584.9	1.19
Phosphate Spur(1)				
Acquisition	12,276.4	2,823.4	9,453.0	4.35
Sarpy Jct./Kuehn				
Not eligible for assistance				
Stryker/Eureka				
None needed				
Three Forks/Whitehall				
None needed(3)				
Valier Jct./Valier				
Rehabilitation	8,070.6	6,735.6	1,335.0	1.20

(1) Discount rate - 4 percent.
Project life - 10 years.
(2) Analysis based on potential traffic
(3) Three Forks/Whitehall segment

SOURCE: CHAPTER 5

TABLE 6-3
PROJECT ASSISTANCE PRIORITIES
Lines Analyzed in 1982 Update

LINE	ALTERNATIVE	PROJECT COST (000's)
Serious Consideration		
Bainville/Scobey	Rehabilitation	$ 4,673.0
Bainville/Opheim	Rehabilitation	9,341.7
North Dakota Line/Whitetail	Rehabilitation	5,330.4
Valier Jct./Valier	Rehabilitation	2,203.3
Manhattan/Amsterdam	Rehabilitation	791.6
Potential Consideration		
Glendive/Circle	Rehabilitation	1,983.9
Mission/Wilsall	Acquisition	297.0
Newlon Jct./Richey	Rehabilitation	5,099.2
Dixon/Polson	Rehabilitation	995.2
Big Sandy/Fort Benton	Rehabilitation	808.9
Lavin Spur	Rehabilitation	188.8
Fromberg/Bridger	Acquisition	190.0
Drummond/Philipsburg	Acquisition/Rehabilitation	1,504.6
Circle/Brockway	Acquisition	365.3
Little or No Consideration/Reason		
Brazil Creek Spur	No existing traffic, indefinite mine re-opening	
Butte/Whitehall	No apparent project benefit	
Columbia Falls/Kalispell	No rehabilitation needed	
Kalispell/Somers	No revenue rail users	
Durant/Anaconda	No rehabilitation needed	
Anaconda/Brown	No apparent project benefit	
Montana City/Basin	No apparent project benefit	
Nichols Wye/Basin	Not eligible, too much traffic	
Phosphate Spur	No existing traffic, indefinite mine re-opening	
Sarpy Jct./Kuehn	Not eligible, too much traffic	
Stryker/Eureka	No rehabilitation needed	
Three Forks/Whitehall	No rehabilitation needed	

next line is in Category I which indicates a potential abandonment within three years. The alternative is essentially a compromise to a possible abandonment. The project from Manhattan to Amsterdam would allow fully loaded, 100-ton covered hoppers to the principal station but would allow the remainder of the line to be abandoned.

Potential Consideration - As shown in the table, nine lines are listed for potential consideration for projects. These projects are placed in this category because the total project benefits are low when railroad disbenefits are counted as costs, but the rail user benefits are significant. That is, an abandonment would likely be expensive to Montana rail users but continued service may cost the railroad even more. However, in accordance with the State's analytical procedures, projects in this group are not automatically excluded from further consideration.

Little or No Consideration - Finally, several lines are placed in the last category because of very small or no abandonment impacts on Montana rail users or because they are not in need of funding under this program.

State Project Decision

In consideration of the analysis and ranking contained in this Update, the State of Montana intends to seek available federal funding for one branch line, the Valier Branch, at this time. (Other funding requests may be made at a later date.) The selection of this line for funding has been made for several reasons including:

- Project in Serious Consideration category
- Line recently re-classified from Category II, under study for abandonment, to Category V, all other lines. This is an indication of railroad commitment to the line.
- Profitable line, potentially more profitable if a grain subterminal is constructed.
- Project is within funding capability of State of Montana.

Future Activities

Not all eligible lines have been examined in this update. Therefore, the next priority is to analyze additional lines in a manner similar to that contained in Chapter 5. Among the rail lines that will receive analysis in a supplement are:

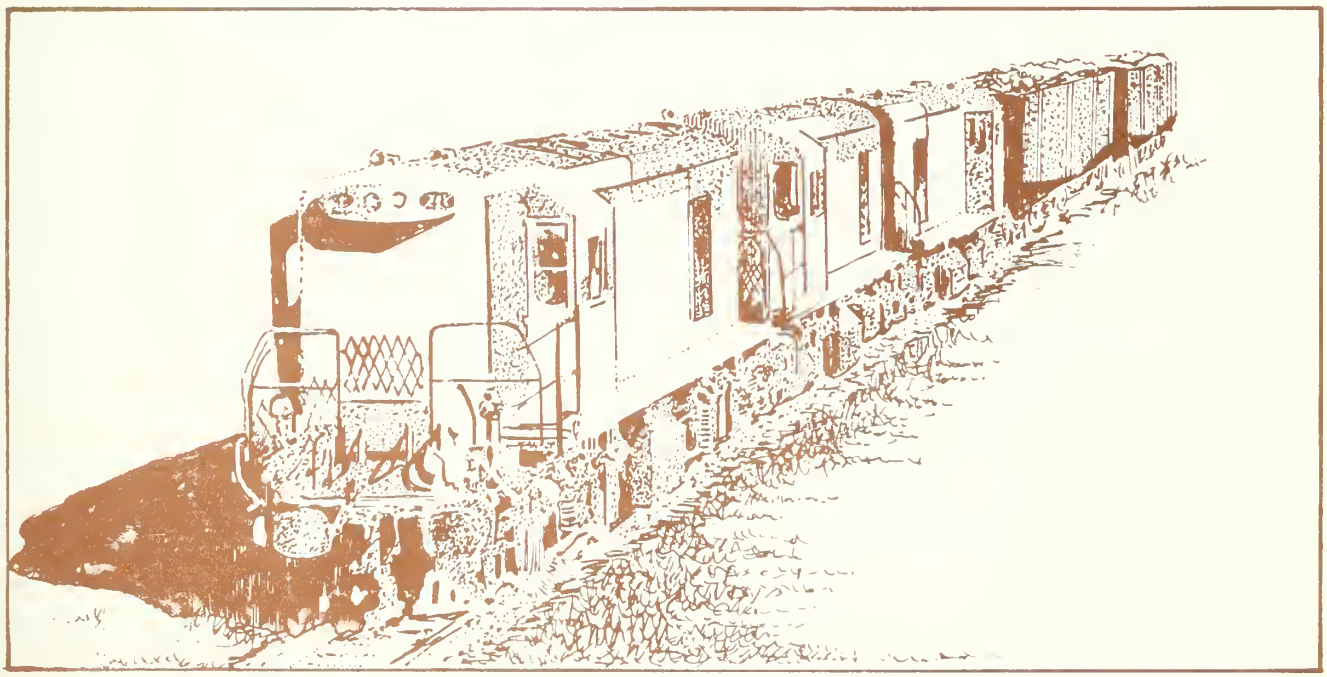
- Lewistown to Geraldine
- Moore to Sipple
- Pacific Jct. (Havre) to Big Sandy
- Great Falls to Fort Benton
- Loy Spur

APPENDICES

A - RAIL USER SURVEYS

B - STATUS OF CURRENT PROJECT

C - INDEX TO FRA REGULATIONS



APPENDIX A

NOTICE TO RESPONDENT
If space provided for answer to question is not sufficient – use back side of form – simply identify the continuation of question by a corresponding number.

STATE OF MONTANA
DEPARTMENT OF COMMERCE
Transportation Division
449-3423

Confidential

RAIL USERS SURVEY (for the time period: _____)

1. COMPANY NAME: _____

COMPANY ADDRESS: _____
(Street or Box No.) (City)

_____
(County) (Zip Code) (Telephone Number)

2. PRINCIPLE TYPE OF BUSINESS: _____

3. PRIME MARKET AREA (check one for normal radius):

20 mi. ____, 50 mi. ____, 100 mi. ____, 500 mi. ____, 1000 mi. ____, nationwide ____.

Explain: _____

4. AVERAGE NUMBER OF YEARLY EMPLOYEES: At this location _____, Other _____.

Explain: _____

5. COMPANIES USE OF RAIL SERVICE: Was Normal Yes ____ No ____

If no, explain: _____

The location of the company ship./rec. facility is _____ miles N–E–S–W of the freight station located at: _____

_____

Is the track used to load cars a private siding ____ public track ____ both ____ .

Closest alternate freight station is located at _____

6. COMPANY BUSINESS TRENDS (check appropriate trend):

(A) Over the last five (5) years have increased ____ (by ____%), decreased ____ (by ____%), remained constant ____.

Explain: _____

(B) Next five (5) years are expected to increase ____ (by ____%), decrease ____ (by ____%), remain constant ____.

Explain: _____

7. SHIPMENTS:

INBOUND	OUTBOUND
_____ (commodity)	_____ (commodity)
Avg. market value is $_____ per _____	Avg. market value is $_____ per _____
Rail origination _____	Rail destination _____
Rail rate _____ per cwt, ton, bushel (circle one)	Rail rate _____ per cwt, ton, bushel (circle one)
Total number of cars for the time period _____	Total number of cars for the time period _____
_____ (commodity)	_____ (commodity)
Avg. market value is $_____ per _____	Avg. market value is $_____ per _____
Truck origination _____	Truck destination _____
Truck rate _____ per cwt, ton, bushel (circle one)	Truck rate _____ per cwt, ton, bushel (circle one)
Total number of truckloads for the time period _____	Total number of truckloads for the time period _____

(If more space is needed to describe shipping or receiving, use chart on reverse side).

8 EXPLAIN REASON SHIPMENT BY TRUCK RATHER THAN RAIL: _____

_____

_____

RESPONDENT'S NAME (please print) _____ DATE _____

7. *(continued)*

RAIL TRANSPORTATION

INBOUND	OUTBOUND	COMMODITY	Annual Car Loads	(ORIGIN/DESTINATION) Out of State: City/State OR Montana: City/County	PRODUCT (Commodity) VALUE	RAIL RATE OR TARIFF	
					$ PER	$ PER	
					$ PER	$ PER	
					$ PER	$ PER	
					$ PER	$ PER	
					$ PER	$ PER	

TRUCK TRANSPORTATION

INBOUND	OUTBOUND	COMMODITY	Annual Truck Loads	(ORIGIN/DESTINATION) Out of State: City/State OR Montana: City/County	PRODUCT (Commodity) VALUE	RAIL RATE OR TARIFF	
					$ PER	$ PER	
					$ PER	$ PER	
					$ PER	$ PER	
					$ PER	$ PER	
					$ PER	$ PER	

Explain shipping problems or peculiarities: _____

(Front page continuance) _____

RAIL USERS SURVEY
(SUPPLEMENTAL)

(FOR DEPT. USE ONLY)
Line _____
S.I.C. No. _____
User Number _____

SURVEY TIME PERIOD _____

COMPANY NAME: _____ TEL. NO.: _____

COMPANY ADDRESS: _____
(Street or Box No.) (City)

9. CHANGES IN RAIL SERVICES:

A. Total carloads for survey period: _____ B. Average carloads for previous 5 years: _____

C. Explain any major differences and reasons: _____

_____

_____

10. IMPACT OF DISCONTINUANCE OF RAIL SERVICES:

A. Impact: _____ None _____ Moderate _____ Severe

B. Transportation Impact: _____

_____

_____

_____

_____

C. Employment Impact: _____

_____

D. Production Level Changes: _____

_____

E. Market Area Changes: _____

_____

F. New Expenses and Costs: _____

_____

_____

G. Future Operations: _____

_____

_____

11. PLANT ECONOMICAL DATA:

A. Annual Payroll: $_____ C. Local Goods/Services Expenses: _____
(To include Taxes, Insurance, Utilities, etc.)

B. Annual Sales: $_____ D. Size of Operation: _____
(Describe in Acres Farmed, Annual Tonnage, Annual Sales, etc.)

Explain or Describe: _____

_____

_____

INTERVIEWER: _____ DATE: _____

APPENDIX B

STATUS OF CURRENT

RAIL REHABILITATION PROJECT

The Burlington Northern (BN) and the State of Montana signed an agreement in March 1982 to rehabilitate two branch lines in Teton County. One line extends 21.1 miles from Power to Eastham Junction and connects with the other line from Fairfield to Choteau which is 19.12 miles long. The first line was first analyzed in the 1980 Supplement and the second was first analyzed as a Milwaukee Road line in the initial Rail Plan.

The BN will rehabilitate these lines so that they can operate at 25 mph and can carry fully loaded covered hoppers. The maximum gross wegiht of a car and its lading will be 263,000 lbs. Between Power and Eastham Jct., the railroad will replace 18,900 ties, add rail anchors, and resurface the line. The Fairfield to Choteau project will consist of a replacement of the lightweight rail with 115 lb. continuous welded rail. Table B-1 presents the schedule for this project.

The total cost of both projects is $2,823,500 of which the BN will contribute 20%. The other 80%, which is part of Montana's allocation of federal rail funds, will be repaid by the BN over a 10-year period. Table B-2 contains the amounts which have been allocated to each line.

TABLE B-1
REHABILITATION PROJECT SCHEDULE
Power to Eastham Jct.
Fairfield to Choteau

LINE	MILEPOSTS	LENGTH	REHABILITATION ITEM	START	END
Power/Eastham Jct.	0.00-21.10	21.10	18,900 Tie Renewals.	7/5/82	10/3/82
			Ballast, Resurface, Line and Tamp.	7/5/82	10/3/82
			Place Additional Anchors.	7/5/82	10/3/82
Fairfield/Choteau	233.27-252.39	19.12	Relay Rail.	9/1/82	11/30/82

TABLE B-2
REHABILITATION PROJECT COST ESTIMATE
Power to Eastham Jct.
Fairfield to Choteau

LINE	FEDERAL Amount	FEDERAL Percent	BN Amount	BN Percent	TOTAL Amount	TOTAL Percent
Power/Eastham Jct.	$ 558,800	80	$139,700	20	$ 698,500	100
Fairfield/Choteau	1,699,800	80	424,950	20	2,124,750	100
Total	$2,258,600	80	$564,650	20	$2,823,250	100

APPENDIX C
INDEX TO FEDERAL
RAIL PLANNING REGULATIONS
49 CFR Part 266, Section 266.15
Dated August 30, 1979 and August 29, 1980

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Format on State Rail Plan	b	C-1
Objectives of Rail Service Assistance Program	c,1	1-3
Operating Carriers	c,2,i	2-5
Freight Traffic Density	c,2,ii	2-15
Passenger Service	c,2,iii	2-16
Abandoned Lines Eligible for Assistance	c,3,i	3-2
Lines Potentially Subject to Abandonment	c,3,ii	3-6
Lines with Applications Pending	c,3,iv	3-6
Lines Involved in Unification and Coordination Projects	c,3,v	None
Rail Projects for In-Kind Benefits	c,3,vi	None
Rail Projects for Non-Rail Service Program Assistance	c,3,vii	None
Screening Criteria	c,4	4-14
Methodology for Benefit/Cost Ratio	c,5	Chapter 4
Annual Tonnage, Cars, Shippers	c,6,i	Chapter 5, pp 11, 12, 26, 28, 29, 38, 45, 54, 66, 67, 74, 76, 86, 99, 106, 108, 118, 128, 138, 140, 150, 153, 162, 168, 170, 179, 184, 194, 201, 206, 214, 216, 222

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RAIL PLANNING REGULATIONS
49 CFR Part 266, Section 266.15
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(Continued)

TITLE	REFERENCES(1)	RAIL PLAN UPDATE LOCATION
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Analysis of New Projects	d,2,v	Chapter 5
Agency Changes	d,2,vi	1-1
Policy Revisions	d,2,vii	None

(1) Subsection, paragraph, and sub-paragraph of Part 266, Section 266.15.

RRPlan/J

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